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General Practitioners':
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Medicine

Medicine — Some Emphases in 1956

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Advances in the theory and practice of Medicine occur irregularly and at some depth along a broad front. There are few, if any, developments that can be attributed to a single year. However, as pointed out in last year's review[1] of Medicine, "the spotlight of medical interest tends to shift and each year certain subjects tend to take precedence over others." Where the emphasis is placed in any given year depends not only on the activity within a subject for that year, but to a considerable extent on the orientation of the reviewers. With realization of the arbitrary and incomplete nature of the selection, the present writers believe the following account portrays some of the important emphases on the Medicine of 1956.

I. Infections

Much applied and basic research has been carried out during recent years in the field of general Bacteriology in Antibiotics, Immunology and Serology, Mycology and Virology. Some of the most important investigations consisted of fundamental research in Immunology, dealing with the mechanisms of antibody formation and of antigen-antibody reactions. Research of this type will accomplish much toward promoting a better understanding of the precise relationship of micro-organisms to disease and of the host response to infections. It is impossible to discuss these investigations in this type of article and the reader is accordingly referred to an excellent, concise and readable new textbook, "Immunology and Serology"[2], by Carpenter.

One of the most important recent developments has been a study of a series of more specific tests for syphilis. The antigen employed in the Wasserman complement-fixation test is an alcoholic extract of normal heart muscle, but the chief disadvantage when this antigen is used is the lack of specificity of the tests; biological false-positive reactions occur during and following the course of some types of acute infections and also in a number of chronic diseases. The percentage of biologic false-positive reactions increases as the percentage of syphilitic reactors decreases; these false-positive reactions have therefore become a problem of increasing importance in the diagnosis of syphilis. The Treponema pallidum immobilization test for the detection of specific syphilitic antibodies has been carried out by Dr. L. Lansdown of the Provincial Laboratory since the initial conception of this test. The Treponema pallidum immobilization test is valuable for the elimination of biological false-positive reactions but it is also extremely complex and technically difficult to perform; this factor therefore implies that the use of the test must necessarily be restricted to the investigation of special patients whose sera when tested by the older methods of serological diagnosis showed a positive result. A more recent group of tests is now under investigation in which a suspension of inactivated T. pallidum is employed; the Treponema pallidum immune adherence test, the Treponema pallidum agglutination test and the Treponema pallidum complement fixation test are included in this group. It would appear, according to reports, that these more recent tests are technically more practical and are almost as specific as the Treponema pallidum immobilization test, but, as they are still very expensive to perform, must at the present be regarded as only in an experimental stage[3].

Much of the research in the field of antibiotics has been directed towards the discovery of antibiotics effective against resistant strains of Staphylococci. In some relatively limited field trials novobiocin[4] has proved effective against some of these Staphylococci but the duration of the effectiveness can only be determined on the basis of field trials and will depend primarily on the extent of the use or abuse of the antibiotic. It is becoming increasingly apparent that the development of new antibiotics is not the answer to the control of Staphylococcal infections; with the widespread use of antibiotics a greater variety of antigenic strains of Staphylococci are produced; this adaptibility to adverse conditions is probably related to the inherent versatility of this micro-organism. Following the indiscriminate use of antibiotics new antigenic strains of Staphylococci become predominant in a community with many persons becoming susceptible to them, the final result being an increase in the number and severity of Staphylococcal infections. This adverse situation has been largely brought about by the practice of providing an "umbrella of antibiotics" to replace the former practice of accurate etiologic diagnosis and a reliance on ideal aseptic techniques. It is only by recognition of these facts that Staphylococcal infections can be brought under control and the community once again become immune to stable strains of Staphylococci.

Although no new bacteria have been discovered, much has been learned about some of the older

ones. For instance the coliform bacilli have always been considered as non-pathogens when located in their natural environment, the intestine, but now by the use of serological methods a number of special types have been disclosed which are capable of producing epidemics of diarrhoea, particularly in infants[5].

One ordinarily thinks of the diphtheria bacilli as being clearly divided into two groups, in the first group the pathogenic members and in the second the non-pathogenic diphtheroids. Recent work has shown that bacteriophage is capable of changing avirulent strains of these micro-organisms to virulent ones. The potential significance of this discovery is great, more particularly in the field of epidemiology[6].

Some work has been carried out in recent years on the so-called "L" forms of bacteria. These "L" forms may be associated with many commonly occurring pathogenic bacteria; some of them will pass through bacteria-retaining filters[7], and the implications involved here in the preparation of sterile solutions filtered through bacteria retaining filters are disconcerting; much more work remains to be carried out in this particular field of investigation. A second look is also being taken at the non-pathogenic acid-fast saprophytes recovered on culture of clinical material; some of these saprophytes are capable of producing low-grade chronic infections particularly of the skin.

Probably no field in medicine has expanded so rapidly in recent years as Virology. The isolation and identification of two new types of viruses is outstanding; these include the Adenoidal-Pharyngeal-Conjunctival viruses[8] and the Enteric-Cytopathogenic Human "Orphans"[9]. The relationship of the Adenoidal - Pharyngeal - Conjunctival viruses to respiratory and eye infections has been established; the "Orphan" viruses have been isolated from cases of central nervous system disease as well as from normal persons. The relationship of these viruses to central nervous system disease has not been definitely established.

Extensive work is still being carried out on poliomyelitis vaccine to improve the safety of the vaccine by the substitution of less virulent strains, and to increase the efficiency of the vaccine by the use of more antigenic strains of virus. Other research workers are attempting to develop an attenuated virus vaccine which may be safer to use and more effective in the control of poliomyelitis. Serum antibody studies of active cases of poliomyelitis, including convalescent patient as well as normal population groups have helped considerably towards promoting a better understanding of the basic nature of this disease.

This summary would be incomplete without mentioning the titles of a few of the modern textbooks of Bacteriology. These are appended below[10, 11, 12].

II. The Heart and Arteries

Diseases of the heart and arteries not only continue to constitute the leading cause of death, but unfortunately appear to be increasing this lead. The principal offender is that form of arteriosclerosis known as atherosclerosis, a disease which sets the stage for the common and catastrophic complication of thrombosis, whether it be in coronary, cerebral or peripheral vessel. It is not surprising therefore, that tremendous effort is now being exerted to solve the problem of the genesis of atherosclerosis, and to prevent its attendant thrombosis by the use of anticoagulant drugs.

Atherosclerosis

Recent attention was focussed on the atherosclerosis problem in an international symposium on this disease presented by the Minnesota Heart Association and the University of Minnesota at Minneapolis in September 1955. Speaking of the progress in this disease, Dr. Louis N. Katz of Chicago, stated[13]:

"Let us see wherein this progress lies. It lies first of all in the rejection of the view that atherosclerosis is merely aging which is inevitable and irreversible, and, more important, it lies in the acceptance, instead, that it is a disease which is reversible and, we are convinced, preventable. Basically it is a metabolic disorder involving lipid-cholesterol - lipoprotein metabolism. The theory upon which the work of the Michael Reese group is now based considers that, when dealing with population groups, altered lipid-cholesterol-lipoprotein metabolism is engendered by a luxus of calories, lipid and cholesterol in the diet over the life span. This acquired, rich and unbalanced diet, particularly in the sedentary, with its high fat content (constituting up to 50 per cent or more of the caloric intake) influences the metabolism of the lipid - cholesterol - lipoprotein and so sets the background for the ready genesis of atherosclerosis in the population. Dietary deficiencies of some vitamins and amino acids may act to accelerate atherogenesis. Certain diseases, habits, stresses, genetic traits and local factors (such as vascular trauma and vascular infections) may act as triggers in this process in individual cases. Hypertension too, is an accelerator of atherosclerosis. But basic to all of these triggers and accelerators, in most cases at least, is the dietary pattern over the life span, consisting of an excess of calories, lipid and cholesterol."

There has been a natural reluctance to attribute our increasing incidence of atherosclerosis to our high intake of calories and lipid. However, as the evidence has accumulated, the argument tends to be less about whether diet has an effect and more about the magnitude of the effect, what dietary elements are involved, and how they act[14]. The evidence has come from many sources—experiments on man and animals, clinical observations,

epidemiological studies, and particularly from studies on population samples. From the latter it appears that wherever the diet is high in fat, the average serum cholesterol and the incidence of coronary heart disease are likewise high; whereas in populations on a low fat diet, the average serum cholesterol and incidence of coronary heart disease are proportionately lower.

There is now no doubt that the serum cholesterol and lipoprotein levels of the atherosclerotic patient can be influenced by dietary measures. In the reasonable hope of retarding the progression of atherogenesis it seems advantageous to restrict the fat and caloric intake of such patients, even though the clinical status may not appear to be improved. There are already some preliminary studies indicating improvement in the course of atherosclerotic patients in whom lipid indices have been improved by dietary restrictions. Since, in many cases, a reduction in weight is also indicated, it is fortunate that a reduction in dietary fat intake tends to accomplish both purposes — correction of lipid abnormality and obesity.

It is not generally realized that desirable effects on lipid indices and body weights can be achieved without rendering the diet tedious and unpalatable. The effects of different food fats on atherogenesis remain to be established; there is not general agreement that all vegetable fats are less involved in atherogenesis than are animal fats. At present it appears desirable to restrict total dietary fat by curtailing the consumption of butter, margarine, lard, shortening, cream, meat fats and fried foods.

Anticoagulants

The use of anticoagulant therapy in the treatment of acute myocardial infarction is now generally accepted as a valuable adjunct to treatment. A few authorities prefer to restrict its use to severe or complicated cases; difficulty arises from the fact that a mild case when first seen, may suddenly become worse through further progression of thrombosis.

Not so well established is the role of long-term anticoagulant therapy in the prevention of recurrent cardiac infarction. However, two recent papers indicate fewer recurrences in treated, as compared to control patients. Suzman[15] reporting 208 patients studied for periods of between 3 and 76 months, observed a cardiac infarction recurrence rate of 8.5 per cent in patients receiving anticoagulants as compared to 27.3 per cent in the control group. Keyes[16] encountered a mortality rate three to five times greater in control patients than in a long-term treated group with previous infarction. Where adequate laboratory and clinical supervision can be achieved, it is thus advantageous to place on prolonged anticoagulant therapy those patients who have had two or more attacks, and those patients with a previous infarction in whom a recurrence would seem to be impending.

III. Metabolism

In the broad field of metabolic disease, the discovery of a new adrenal hormone, aldosterone, and the development of oral preparations for treatment of diabetes mellitus, have excited much interest. While the full theoretical implication of the former, and the final practical application of the latter remain to be established, these discoveries have deservedly attracted widespread attention.

Aldosterone

In 1952 Simpson, Tait and associates extracted from the amorphous fraction of adrenal cortex extract, a substance which was called "electrocortin" because of its ability to promote sodium retention and potassium excretion. By mid 1955 this compound aldosterone had been isolated in pure form, its chemical formula determined, and synthesis achieved. Aldosterone is the 18-aldehyde derivative of cortico-sterone. Circulating levels are customarily estimated by determinations of urinary aldosterone. Progress in the biochemistry of this steroid has focussed clinical attention on the recognition of primary aldosteronism[17, 18], and on the likelihood of use of the steroid in replacement therapy of Addison's disease.

The mechanism governing production of aldosterone by the adrenal has not been determined as yet, and the gland appears capable of increasing or decreasing its aldosterone secretion independently of pituitary corticotropin stimulation. In pan-hypopituitarism aldosterone levels are normal. They are decreased in Addison's disease. In Cushings disease due to adrenal hyperplasia there is slightly increased aldosterone secretion, but it is more markedly increased in cases of adrenal carcinoma.

Clinical states associated with disturbances of aldosterone may be classified according to excessive or diminished production.[17]. Hyperaldosteronism may be due primarily to a disturbance of the adrenal cortex, or secondarily to abnormalities, existing outside the adrenal which subject the gland to increased demand or stimulation. Primary aldosteronism represents a serious condition which can be cured. Clinically it is manifested by periodic severe muscular weakness, intermittent tetany and paresthesiae, polyuria and polydipsia, and hypertension. The edema and general appearance of Cushing's disease are absent. The blood shows hypokalemia, hypernatremia and alkalosis. Determinations of urinary aldosterone give high values, while urinary 17 hydroxycorticoids and 17 ketosteroids remain normal. The majority of patients presenting with this syndrome are found to have an adrenal tumor producing excessive amounts of aldosterone and surgical removal of the aldosteronoma cures the condition. If no localized tumor is found the recommended treatment is surgical removal of all or part of the adrenals.

Secondary aldosteronism may occur under conditions of sodium depletion (low sodium diets and prolonged sweating), the adrenal secreting increased amounts of aldosterone without corresponding rise in other adrenal hormones. This may occur in a number of clinical states including the edematous stages of nephrosis, heart failure, cirrhosis, eclampsia, and in non-edematous conditions of salt restriction, sweating, salt-losing nephritis, after surgical trauma, and during pregnancy[17, 19].

Diminished production, or hypoaldosteronism may occur in a primary form due to bilateral destruction or atrophy of the adrenal cortex, and is accompanied by lack of other adrenal hormones. It is expected that aldosterone will be used, in combination with hydrocortisone, as replacement therapy in Addison's disease. It is effective by intramuscular and oral administration. Until more is known about the normal stimulus to production of aldosterone there is no definite clinical syndrome associated with chronic secondary alderostonopenia.

New Anti-Diabetic Drugs

Recent reports of studies on hypoglycaemia-producing sulfonamides have re-kindled expectation of an oral therapeutic agent for the management of diabetes mellitus. The sulfonamide N-sulfanilyl-N'-n-butylurea (BZ55, Carbutamide, Nadisan, U6987) has been under extensive laboratory and clinical trial in Germany and France since 1953[20-23]. More recently in Great Britain, and on this continent, BZ55 has been distributed for investigation by selected groups[24-28, 31-36, 39-43]. A related compound, 1-butyl-3-p-tolysulfonylurea (Orinase, D860, U-2043) is likewise under study[29, 30, 37, 38].

These sulfonylureas have been found to lower the blood sugar in normal and in diabetic subjects. The site and mode of action have not been determined. Theoretically they could act by inhibiting an insulin antagonist or "insulinase"[28], by interfering with fixation of insulin, or by influencing the production of glucagon by the alpha cells of the pancreas[22]. It is unlikely that these compounds promote increased liberation of insulin, but more likely that they inhibit the excretion or destruction of insulin[31]. It may be that the sulfonylureas depress certain of the sugar-producing enzymes in the liver, or that there is potentiation of insulin in peripheral tissues[30]. Whatever the mode of action, the fundamental physiological defect of diabetes is unaltered, as evidenced by the ineffectiveness of these agents in diabetic acidosis and coma[32]. Best results would seem to be in those diabetic subjects who possess an appreciable amount of endogenous insulin[35].

Clinically BZ55 is proving of use in selected cases of diabetes mellitus. It is more reliable and efficacious in obese adults having stable diabetes, with onset of the disease after forty years of age, and who require small amounts of insulin in spite of satisfactory dietary control. It is less valuable in severely diabetic thin adults, or in those having long-standing disease requiring prolonged use of exogenous insulin[22, 33, 25]. BZ55 has not proven of value in juvenile diabetics[33] or in acidosis or coma[23]. Patients controlled on BZ55 may develop an intercurrent infection resulting in ketosis which is unaffected by BZ55[39]. Previous insulin requirements give no indication of the amount needed of sulfonylurea[23], and ketosis may develop on withdrawal of insulin in change-over of therapy[39]. The maximum benefit of the new drug may not be manifested immediately upon institution of therapy, and the hypoglycaemic effect may linger for some weeks after discontinuation.

Initial reports state that toxicity is practically negligible, but subsequent series of cases have shown a significant number of drug rashes[26, 33, 34, 39, 40, 41], drug fever[39], granulocytopenia[39, 23, 41, 22, 43, 27], and thrombocytopenia[39].

It is not to be expected that BZ55 or its related compounds will replace insulin in the care and management of diabetic patients. A great deal further study is required to determine the proper criteria for case selection, and to eliminate possible deleterious results of long-term therapy. At present the use of the sulfonylureas is still experimental, and patients in whom they are employed should be under strict medical supervision.

IV. Blood

Among the many interesting recent developments in hematology, two techniques utilizing radioactive isotopes command attention. These useful procedures are now available locally.

The Urinary Excretion Test in Pernicious Anemia[41]

The diagnosis of pernicious anemia in the untreated state is a fairly simple matter which involves the consideration of the clinical picture, gastric analysis, and examination of the peripheral blood and bone marrow. This is then confirmed by the reticulocyte response and rise in red blood count and haemoglobin following the institution of B12 therapy. However, the diagnosis of the disease in patients who have received injections of liver, B12, or folic acid preparations by mouth is difficult, as the blood and bone marrow rapidly return to normal and these important diagnostic features have been lost. It should be remembered that many multi-vitamin preparations contain folic acid which can completely restore the blood and bone marrow to normal while allowing the changes in the central nervous system to continue at an accelerated rate. Thus, one may see patients with signs of sub-acute combined degeneration of the cord with a normal peripheral blood and bone marrow. The establishment of the diagnosis of pernicious anemia then depends on the ability to demonstrate that vitamin B12 (extrinsic factor) cannot be absorbed. This is done by giving the patient a small oral dose of B12 labelled radioactive cobalt (Co^{60}). This is followed by the intra-

muscular injection of a large flushing dose (1000 micrograms) or ordinary B12. In the normal subject between 5 and 50% of the radioactive B12 is absorbed and carried out into the urine within 24 hours of the flushing dose. In the patient with pernicious anaemia less than 3% of the ingested labelled B12 appears in the urine. The radioactivity can be readily estimated in the urine and the B12 absorption estimated.

Determination of Red-Cell-Survival Time

Another radioactive isotope technique which has become available is that of radioactive chromium (Cr 51), red-cell-survival time. This procedure depends on tagging the patient's own red cells with Cr 51 and following their disappearance from the peripheral blood. The life span of the red cell can be estimated in this fashion and hemolysis as reflected by a shortened red cell life span easily and quantitatively determined.

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A Case of Sheehan's Syndrome Simulating Primary Myxedema

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In a surprisingly large number of individuals with pituitary deficiency, hypothyroidism is so prominent as to mask the primary disorder[1]. As there is some evidence that thyroid hormone may precipitate these individuals into adrenal crisis[2], and, as thyroid does not alleviate the symptoms, correct diagnosis and treatment is essential. The essential following is a case in point:

Case Report

A 33 year old female was admitted to the medical wards of the St. Boniface Hospital on April 30, 1955.

She stated that she had been quite well until the birth of a stillborn child in 1953. Her delivery occurred at home and was complicated by a severe post-partum hemorrhage necessitating hospital admission and several transfusions. Following this delivery, although her periods previously had been normal, she developed complete amenorrhea and failed to lactate. Over the succeeding two years she noted that her breasts were becoming smaller, that her strength was failing and that her memory was becoming poor. Over the past year she has complained of weight loss and cold intolerance and in the past six months she has noticed considerable muscle pain. Her B.M.R. elsewhere on February 9, 1955 was –21 and on February 22, 1955 she was put on ¼ gr. thyroid T.I.D. Because of weight loss, increased weakness and dyspnoea this was discontinued on March 9.

Her past history was non-contributory and her previous pregnancies were normal.

Examination on admission showed a rather dark complexioned woman of frail build (Indian ancestry). There was a pigmented patch over the hard palate and her thyroid was not palpated. Her heart was normal on examination and the blood presure was 100/60. There were no masses palpable in the abdomen. Her nervous system, apart from sluggish reflexes, was normal. The skin was fine in texture and quite dry. She had several dark moles and her palmar creases were dark, but there had been no change in these since childhood. Her head hair was dry and moderately coarse and tended to fall out. Her eyebrows were

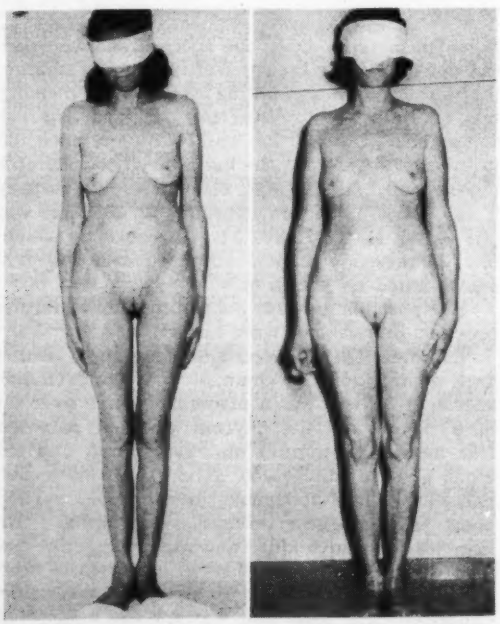
From the Department of Medicine, St. Boniface Hospital.

a little thin. She had almost complete absence of both pubic and axillary hair, and her breasts were atrophic. The general appearance was not that of myxedema and her voice was normal, although her mental status was depressed. Pelvic examination showed a very small cervix and no uterus was palpated.

Laboratory data included — hemoglobin, 11.8 gms.; WBC, 7,800; serum potassium, 5.7 mEq/lit; serum sodium, 139 mEq/lit (Na/k ratio 24) serum chlorides — 93 mEq/lit; fasting blood sugar, 58 mgm% and total cholesterol was 287 mgm%. X-ray of the chest was normal, except for a rather small heart. The E.K.G. showed inverted T waves in leads 11,111,V2,4,6 and flat T in lead I. The P-R and QRS intervals were normal. An E.E.G. showed diffuse dysrhythmia consistent with a metabolic or toxic disturbance. A protein bound iodine was 1.8 micrograms% and 17 Ketosteroids were 1 mgm/24 hours. B.M.R. –31. An adrenalin Thorn test showed an abnormal response. An Insulin tolerance test showed lack of hypoglycemic unresponsiveness. An Olesky test showed a urine minute volume under 1 ml. following the intake of a litre of water and this was increased to 4 ml/min. following pre-treatment with cortisone. Gonadotropin A (F.S.H.) was absent from the urine and total fraction A + B gave an equivalent of 6.4 micrograms per hour (method of Crookes et al.).

A radio Iodine uptake was zero which increased to 6% following one ampoule of T.S.H.

A Glucose tolerance was flat starting at 75 mgm%, reaching a maximum of 102 at ½ hour and falling to 45 at five hours.



May 18th, 1955 August 9th, 1955

Therapy was started on May 29 with cortisone 12.5 mgm. b.i.d. and on June 3 oestrogens and thyroid were added. The thyroid was at ⅛ gr. and increased to gr. 1 daily by June 16. There was a rather remarkable improvement in her general well-being soon after therapy was begun and her B.P. which had previously been between 90/60 and 100/70 ranged between 120/80 and 130/90. She was allowed a liberal salt intake without any evidence of edema formation.

She was discharged to the O.P.D. on June 16, 1955. Intermittent cessation of oestrogen therapy failed to cause uterine bleeding.

By August 9, 1956 she had increased her weight from 107 lbs. to 116 lbs. and considerable increase in breast size was noted (see picture). Her B.P. has remained at 120/80.

Discussion

This case presented with many of the signs and symptoms of myxedema and indeed was treated with thyroid elsewhere with a poor result. Although adrenal hypofunction was present clinically as hypotension and a small heart, this was not pronounced and the clinical signs of hypo-estrogenism was similar to that seen in some cases of primary hypothyroidism. The presence of skin crease pigmentation and pigment over the hard palpate and the dark complexion was attributed to racial characteristics. However, her clinical history of post-partum hemorrhage, followed by amenorrhea, failure to lactate and subsequent gonadal atrophy are all but diagnostic of Sheehan's Syndrome. As in Olebaum's cases[2], this lady did not show hypoglycemic unresponsiveness with the insulin tolerance test, although her glucose tolerance showed hypoglycemia at 5 hours. The low P.B.I., elevated cholesterol and depressed B.M.R. and Ra I uptake all suggested myxedema. The absence of F.S.H. in the urine and the increased uptake of Ra I following T.S.H. (this was considered positive evidence of lack of endogenous T.S.H. even though increase in uptake was only 6% as only 1 ampoule of T.S.H. was given) were of diagnostic value in this case.

The excellent response to end hormone therapy especially with the history of deterioration following thyroid alone is strong evidence for the presence of pituitary deficiency in this case.

Although in the majority of patients clinical findings will suggest the diagnosis, proof rests on the laboratory findings. However, many of the laboratory tests previously considered diagnostic have been shown to be misleading in certain cases of proved hypopituitarism. Oelbaum has reported lack of hypoglycemic unresponsiveness in 2 of 6 patients with Sheehan's Syndrome[2]. The electrolyte changes, secondary to adrenal depression, are often borderline. Sometimes because of thyroid atrophy, due to lack of the trophic hormone, response to T.S.H. does not occur[4, 5]. It has also

been shown quite frequently that there is adrenal depression in cases of primary hypothyroidism[5, 6]. Some cases of Simonds disease have shown no increase in 17 Hydroxysteroid after A.C.T.H. due to adrenal atrophy and some cases of Addison's disease show some increase of 17 Hydroxysteroid output following A.C.T.H. Follicle Stimulating Hormone assay is one of the best tests, according to Van Aasdel[1] in post menopausal women, but is of little value in males and in pre-menopausal women.

There are other laboratory tests which, although they show Target organ deficiency, are only suggestive of pituitary hypofunction. Serum cholesterol is elevated in many conditions, but is especially high in primary hypothyroidism. In Simmonds disease the elevation is usually only moderate. The output of 17 K.S. is low in so many states that this is of little value. Protein bound iodine is usually in the upper hypothyroid range in pituitary deficiency but the overlap with levels in primary hypothyroidism makes this test of little definite help. The effect of A.C.T.H. and especially adrenalin on the level of circulating eosinophils is not a sensitive test of adrenal or pituitary function[7]. However, although any single laboratory test may give false information, a battery of tests will usually give the correct diagnosis. Probably the most accurate test is the response of the thyroid to T.S.H., but non-response as described above does not rule out pituitary deficiency.

Summary

A case of Sheehan's syndrome has been presented and some discussion made of the laboratory means of diagnosis.

Particular note is made of the fact that after prolonged pituitary failure, the various target organs may undergo sufficient atrophy to be resistant to small doses of trophic hormone.

As pituitary failure often presents as hypothyroidism and as treatment with thyroid alone is ineffective and sometimes dangerous, it is essential to rule out hypopituitarism in any case of hypothyroidism showing loss of pubic hair, gonodal atrophy, episodes of hypoglycemia and history of post-partum hemorrhage.

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Medical Case Report

Painless Myocardial Infarction

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Patients with coronary thrombosis who present with atypical pain patterns may pose difficulties in both diagnosis and treatment. The following case report illustrates some of these difficulties.

Case Report

W. H., a 65 year old man was admitted to St. Boniface Hospital on April 29, 1956. His past history revealed that he had been a diabetic for nine years. Two days before admission, while walking, he developed marked generalized weakness sufficient to prevent him from walking further. There were no other associated symptoms despite repeated direct questioning as to pain, discomfort, dyspnea, etc. He was first seen by a physician about 36 hours after the onset of weakness. He was extremely drowsy, his blood pressure was 95/65, and his pulse was 64 per minute. Urinalysis showed more than 2% sugar with a trace of acetone and diacetic acid.

Despite treatment of the mild acidosis, he remained drowsy and had Cheyne-Stokes respirations. His blood pressure remained around 70/50. An E.C.G. was ordered on the day of admission. It showed elevated S-Tsegments in leads II and III and AVF and reciprocal depression in the anterior leads. This was interpreted as showing a recent posterior myocardial infarction. Leukocyte count that day was 14,600/cu. mm. with 78% neutrophils. The Sedimentation Rate rose from 15 m.m. on April 29 to 48 mm. on May 14. The patient was digitalized, his diabetes was controlled easily, and anticoagulants were used because of coronary occlusion for a period of 6 weeks. Within several days his drowsiness cleared up completely, and his weakness gradually improved. He would never admit having any chest pain despite further repeated direct questioning.

Discussion

Myocardial infarction with atypical pain patterns may present a difficult diagnostic problem. The location of the pain may be unusual. The pain may be located entirely in the epigastrium and may be thought to be due to some intra-abdominal cause. An E.C.G. is the most certain way to exclude coronary thrombosis in patients with epigastric pain. Pain of coronary thrombosis may also be located in other less usual areas. Perhaps the most difficult diagnostic problem occurs in patients with coronary thrombosis without pain. This subject has been reviewed by Evans and Sutton[1]. They define "painless coronary infarction" as being present in those patients who deny all symptoms, which include an ache, tightness,

sense of pressure, indigestion and discomfort even on direct questioning. The physician should suggest the location of pain by putting his hand on the patient's chest when asking about the symptoms. The questioning should take place close to the start of the illness. An E.C.G. should show marks of coronary infarction. The patients, reported in their article, fulfilled all these criteria. Painless infarction was felt to be due to the slowness of arterial closure, the limitation of coronary blood flow and the efficiency of the collateral circulation. Auricular arrhythmia, hypertension, Stokes Adams Disease, severe vomiting, cerebral embolism appeared to have been of importance. The causes of painless infarction have included insensitivity to pain, gradual occlusion of an artery, so that complete obstruction finally occurred in an insensitive area. Patients with second and third attacks may also have no pain. Painless coronary thrombosis may occur in psychiatric patients whose ability to communicate and whose awareness of the pain is impaired. Finally, it is said that in diabetics, myocardial infarction may be more frequently painless than in the general population. This may be due perhaps to a restricted infarction.

The incidence of painless coronary infarction in the Literature quoted by these authors ranges from 40% down to under 1%. However, not all reported cases fulfill the criteria laid down for painless infarction. The high percentage of coronary infarction in elderly diabetics should make it mandatory to take an E.C.G. on every diabetic patient past middle age in whom the clinical picture is not clear. Certainly the present case illustrates the value of such a course.

Summary

Attention is drawn to the syndrome of painless myocardial infarction. An illustrative history of an elderly diabetic patient is reported. Atypical coronary thrombosis, and painless coronary thrombosis occur not infrequently. Proper treatment depends upon a high index of suspicion on the part of the physician.

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Surgery

A Physiological Approach to Chest Injuries

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Among the many services that a doctor is called on to perform, none is more dramatic or more important than his attendance at a traumatic emergency. Throughout the civilized world, the physician is expected to render prompt and competent care to the victim or victims of any accident. Whereas, only one generation ago the variety of industrial, highway and occupational accidents was relatively limited, in this day and age they have attained a great range and the need for immediate, and efficient emergency care becomes even more urgent.

How important is trauma? In 1952, in U.S.A., accidents ranked fourth, surpassed only by heart disease, carcinoma and pneumonia, as cause of death. In persons between 1 and 35 years of age, accidents were the leading cause of death. And in addition, 9,700,000 persons were injured.

How important in the expanding field of traumatic occurrences, is the thoracic cage and viscera? Again we will examine statistics: in World War II, 33% of the dead examined on the battlefields were found to have died of thoracic injuries. Also, in civilian accidental deaths, about 30 - 35% are caused by thoracic injuries.

One further general question which must be asked before we proceed to the specific consideration of chest injuries is, where do these injuries range in the priority groups of acute injuries?

Priority Groups of Acute Injuries

1. Injuries interfering with vital physiological processes, such as flail chest, tension pneumothorax, cardiac tamponade, head injury and severe bleeding.

2. Injuries whose persistence adds to the shock, if allowed to persist, such as perforation of a hollow visceral organ or rupture of the lower urinary tract.

3. Injuries contributing little to the persistence of shock, if the affected part is placed at rest, such as fracture and soft tissue injury.

From this we see that chest injuries are frequent, important and often deadly, and are becoming more frequent.

A classification of the types of injury of the chest will clarify our approach to assessment and treatment.

I. Non-Penetrating Wounds

Most commonly caused by automobile accidents and falls.

1. Rib Fractures
   Uni-lateral
   Bi-lateral
2. Fractures of sternum.
3. Stove-in chest.
4. Hemothorax.
5. Traumatic pneumothorax.
   Tension pneumothorax.
   Mediastinal flutter.

6. Interstitial Emphysema.
   subcutaneous.
   mediastinal.
7. Contusion of heart.
8. Rupture of great vessels.

II. Penetrating or Perforating Wounds

Usually caused by stabbing with sharp instruments or by flying missiles such as bullets.

1. Defect in chest wall with "sucking wound" phenomenon.
2. Involving blood vessels of rib cage.
3. Lungs and tracheo-bronchial tree.
4. Heart and great vessels.
5. Oesophagus.

III. Combined Wounds of Thorax and Abdomen

IV. Concussion of Lung

Blast Injuries.

Treatment (or Initial Management)

I shall concern myself chiefly with initial management of these cases. Many individuals with thoracic injuries die before there is an opportunity to render medical aid. Others will survive for limited periods but will succumb unless early and proper treatment is available. It is with this group that we are especially concerned.

In the initial management of thoracic injuries one is concerned with the correction of conditions which produce disturbances of cardio-respiratory physiology. As the control of haemorrhage and the prevention of infection are carried out in essentially the same manner as in other parts of the body, it will not be discussed in detail here.

However, for the correction of abnormalities in cardio-respiratory physiology, it is essential that the physician be first familiar with the normal physiological mechanism, and then the changes, the manner in which they are produced, and finally the most effective measures for their relief. The physician must be trained to think constantly in terms of normal and abnormal function.

Normal Physiology of the Thorax

Normally the lungs are suspended in a partial vacuum. The intra-pleural pressure is slightly below atmospheric pressure. The normal intra-pleural pressure varies from -9 to -12 cm. of water on inspiration and about -3 to -6 cm. of water on expiration. As the thoracic cage enlarges and grows smaller in breathing, so the elastic lungs follow the chest wall.

Also it must be remembered that this minimal sub-atmospheric amount of changes in vacuum or pumping action is important in effecting the return of venous blood to the right heart. With these thoughts of function foremost in our mind we can proceed to the treatment of the specific injuries.

Emergency Evaluation and Treatment

Successful management of chest injuries must be based upon the recognition and proper treatment of different abnormalities produced, rather than routine measures. With function kept in mind, the nature and extent of the injury can be rapidly evaluated.

1. Patent airway — This is one of the basic principles in the treatment of chest trauma. The patient must be encouraged to breathe deeply and cough. Intratracheal aspiration with catheter, or bronchoscopy under local anaesthesia may be carried out at the bedside. Tracheotomy is a very effective method of ensuring an airway and should be done more frequently in serious chest injuries. It provides a ready access to the tracheo-bronchial tree for the removal of secretions, and also appears to lessen the effort of breathing.

2. An open sucking wound of the thorax is immediately apparent. This must be converted as rapidly as possible to a closed pneumothorax.

3. If the patient is dyspneic, the chief possibilities to be considered are: compression of pulmonary parenchyma by blood or air, or obstruction of the airway by blood or tracheo bronchial secretions. With compression, enough blood or air is removed to relieve dyspnoea. If the patient cannot keep the trachea and bronchi clear by spontaneous coughing, tracheal aspiration should be carried out, or a tracheotomy may be necessary.

4. When the patient is in shock, the cause is usually blood loss, as demonstrated by a hemothorax. However, abnormalities in cardio-respiratory function, particularly hypnoxia and also interference with venous blood return, may cause or aggravate failure. Care must be taken to avoid over-transfusion.

5. When a large amount of blood is removed from the pleural cavity by thoracentesis, and the blood reaccumulates rapidly, it may be necessary to open the chest and stop the bleeding. This does not happen often.

6. If a large amount of air is removed from the pleural cavity and reaccumulates rapidly, the patient has tension pneumothorax. Subcutaneous emphysema is usually associated with it. An intercostal catheter in the 2nd space anterior can be readily inserted and put on underwater drainage.

7. Paradoxical motion of a portion of chest wall is very apparent and is caused by severe crushing injuries, producing multiple rib fractures. This is readily apparent on inspection. The treatment is discussed below:

Recognition of these abnormalities does not require elaborate equipment. Careful observation, a stethoscope and a thoracentesis tray are sufficient. Highly satisfactory results are obtained from accurate diagnosis and intelligent treatment

Simple Rib Fractures

Simple fracture of one or more ribs is the most common chest injury in civilian life. Pain is the chief problem in treatment. The chief danger is retention of secretions because of the severe chest wall pain. Pain may be relieved by adhesive strapping or by intercostal nerve block. Adhesive

strapping must be avoided in elderly people and in the presence of multiple rib fractures. The important problem then is to be sure that the patient brings up his bronchial secretions. If there is any retention, the patient must be assisted and encouraged in coughing. If there is still any accumulation of secretion, the patient should have immediate aspiration by nasotracheal catheter. This is exceedingly important.

Stove-In Chest or Flail Chest

Violent contact of the chest with blunt objects, as in auto accidents results in the serious syndrome known as "crushing injury." Several ribs are fractured in many places, and there is a portion of the chest wall which moves paradoxically on respiration. This is "flail chest" phenomenon. Associated with this condition, because of the violence may be shock, haemorrhage, wet lung syndrome and, perhaps, tension, pneumothorax, bi-lateral or uni-lateral. More severe cases show dyspnea and cyanosis.

This condition of flail chest is always a serious occurrence, and, if the mobilized segment of chest wall is large, it may even be fatal. Milder cases are adequately handled by adhesive pressure dressing and intercostal nerve block. More serious injuries particularly when bi-lateral may require skeletal traction by inserting wires under local anaesthetic around certain ribs, or the sternum and suspending 5 lbs. or so over a single pulley attached to an overhead frame. This is much more effective than using towel clips. Traction may be removed in 14 to 21 days.

I make it a rule in serious cases to do a tracheotomy immediately. At times this may decrease the chest wall movement so much that suspended traction is not needed.

Oxygen must be administered, and the bronchial secretions removed by nasotracheal catheter, or through the tracheotomy. To assist removal of secretions, nebulized Allevaire or Tryptar may be required; or at times positive pressure oxygen administration.

Traumatic Pneumothorax

Pneumothorax may be the result of either open or closed types of injury. It may be uni-lateral or bi-lateral. In general pneumothorax tends to be self-limited because of the sealing effects of pulmonary collapse. It may, however, progress and at times reach dangerous limits by the valve mechanism in lacerated lung.

Small and uncomplicated closed pneumothorax requires no treatment other than rest and observation.

Closed pneumothorax involving more than 20% to 25% collapse is treated by thoracentesis. Air is withdrawn by needle aspiration. Continuing or recurring pneumothorax may be treated by insertion of a small intercostal catheter and maintaining constant suction.

Tension Pneumothorax

The real danger from a pneumothorax resulting from trauma is the development of positive pressure. This may constitute a real emergency. One does not need x-ray evidence since the symptoms and signs are characteristic. It may be suspected if the patient is short of breath, possibly cyanosed, with a shift of mediastinum to the opposite side, and there is loss of breath sounds in a resonant chest. A large needle may be left strapped in the anterior 2nd intercostal space, as an emergency measure until an intercostal catheter may be placed in position and connected to constant suction.

Interstitial Emphysema

The gases gain access to the subcutaneous tissues by way of the mediastinum. It is usually self-limited with no immediate threat except to the comfort of the patient and the peace of mind of his physician. Subcutaneous emphysema requires no special treatment, except in some instances of acute mediastinal emphysema when an incision in the suprasternal notch is made to allow escape of air.

Penetrating or Perforating Wounds

These wounds are much commoner in wartime but do occur in civilian practice. A large sucking wound as mentioned above causes an open pneumothorax such as in a shot-gun injury. The emergency treatment consists of closing the open wound tightly with dressing and packing until the patient's general condition can be assessed and improved. As soon as possible the wound is excised, damage to underlying organs is repaired and the chest closed with intercostal catheter drainage and constant suction.

Combined Wounds of Thorax and Abdomen

This is a large topic in itself. Combined injuries may be due to crushing or penetrating injuries. The most important fact to keep in mind is that, while thoracic wounds alone may often be handled conservatively, such is not the case where there is evidence or even strong presumption of a concomitant injury of the peritoneal cavity. Perforation, haemorrhage and rupture of the diaphragm are the serious complications and demand exploration.

Four types of surgical approach are available depending on the type and location of the combined injury. These are:

1. Thoracotomy
2. Laparotomy
3. Combined thoracolaparotomy.
4. Separate thoracotomy and laparotomy. incisions.

Injuries of Heart

Contusions of the heart may be caused by violent compression of the chest, as in "steering-wheel" injury. The contusion may give rise to myocardial insufficiency with typical EKG change.

The treatment is the same as for myocardial insufficiency from coronary artery disease.

Wounds of Pericardium and Heart

Wounds of pericardium and heart are usually due to knife stabbing or missiles. If the patient survives the immediate trauma, we may anticipate the onset of cardiac tamponade. This may be caused by blood escaping from the ventricle, or from coronary vessels. Indications of increased intra pericardial pressure are pallor, cyanosis, fall in B.P. and distant cardiac sounds. Aspiration may be diagnostic or life saving. Then it is best to operate, expose the heart, and suture the ventricle.

Foreign bodies of any size in the heart or pericardial sac should be removed.

Conclusions and Summary

The all important part in successful management of thoracic injuries is to proceed with the above mentioned physiological concepts in mind. We employ the usual measures as in the treatment of other acute injuries but in addition there is the extra factor of function. The keynote is function and maintenance of function.

It is necessary that we:

1. Maintain a patent airway.
2. Establish good bellows movement of lungs by correcting:
   Parodoxical movement.
   Any tension pneumothorax.
   Excessive bleeding.

Serious chest trauma is increasing and a clear understanding is essential. Just as there are time honored indications for laparotomy, burr holes, debridement of wounds, so now, there are clear indications for:

1. Intra-tracheal suction.
2. Tracheotomy.
3. Fixation of chest wall.
4. Insertion of intercostal catheter and constant suction.
5. Thoracotomy.

Case Report

Sliding Hiatus Hernia in Children

(Review and Report of a Case)

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Hiatus hernia, like peptic ulcer in children is an infrequently made diagnosis.

In Toronto, Swyer[8] reported on 18 cases seen in 18 months. In Birmingham Children's Hospital in the last few years Smellie[9] said that 15-20 cases per year have been admitted with this condition, this being about 1/5 of their admissions for hypertrophic pyloric stenosis.

Hiatus hernia can be defined as a protrusion of a portion of the stomach through the esophageal opening into the thoracic cavity. Carré[1] has used the term "partial thoracic stomach" to include all these cases because of the anatomical malposition of the cardia, whether it be due to a true esophageal shortening, developmental in origin, or whether the apparent shortened esophagus is secondary to an herniated stomach through an enlarged diaphragmatic opening. Both concepts have been shown to be correct, except that a true congenitally short esophagus is uncommon (Allison[2] 1:204 cases, Harrington[3] 5% of 489 cases, Sweet[1] 4.5% of 111 cases). Also, in most instances the stomach is readily replaced into its subdiaphragmatic position without undue tension of the esophagus. Furthermore, true cases of congenitally short esophagus do not develop reflux esophagitis and stricture, but develop the complications of peptic ulcer, viz. perforation, hemorrhage etc.

Of the varieties of partial thoracic stomach (Chart 1) the sliding hiatus hernia is much the commoner type (87% of 111 cases — Sweet[1], 83% of 204 cases — Allison[2].

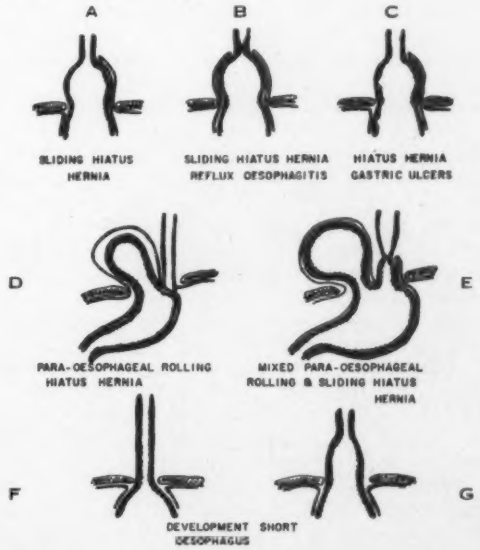

Chart 1

Varieties of partial thoracic stomach. A, the sliding hiatus hernia with here area of stomach above the diaphragm on the right and a sac on the left. B, sliding hiatal hernia with a complete sac. Inflammatory thickening of the lower esophagus, due to reflux esophagitis, is shown. C, sliding hiatus hernia with peptic ulceration in the stomach which may be either above or below the diaphragm. D, paraesophageal hiatus hernia where the greater curvature and fundus of the stomach have rolled around the fixed cardiopyloric axis into a preexisting sac passing either through the fibers of the right crus or through the hiatus itself. The cardia is below the diaphragm and is competent. E, mixed paraesophageal and sliding hiatus hernia. The cardia is above the diaphragm and is usually incompetent, exposing the patient to the dangers of reflux esophagitis. F, developmental short esophagus with failure of morphological differentiation between esophagus and stomach. There is a tubular structure above the diaphragm lined internally with gastric mucous membrane but externally resembling the esophagus. G, developmentally short esophagus with morphological differentiation between stomach and esophagus above the diaphragm. The esophagus is primarily short, and the cardia cannot be replaced below the diaphragm as in the case of a sliding hernia.

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Pathogenesis of Hiatus Hernia

Olson and Harrington[5] believe that the enlarged hiatus is a congenital defect resulting from closure of the diaphragm about the delayed descent of the stomach from its thoracic position. If the stomach does not descend, then a short congenital esophagus with partial thoracic stomach results. However, in most cases the stomach descends leaving an abnormally large or incompetent hiatus and an esophagus that is of normal length. Increased abdominal pressure as in straining, or the concomitant association of pyloric stenosis (vide infra) with vomiting, or, as in adults, obesity, pregnancy, etc., will bring about hernial formation.

Allison[2] ascribes the deficiency to a lax crural sling and claims that the right crus of the diaphragm as functioning comparably to the puborectalis muscle at the ano-rectal junction. Barrett[6] maintains that the left gastric artery and its attached mesentery is all important in retaining the cardia below the diaphragm, and that the size of the hiatus is of secondary importance. Others have favoured the phrenoesophageal ligaments.

Probably all are important and have their definite functions as part of the extrinsic mechanisms for maintaining the cardia in its anatomical position.

In addition there are intrinsic factors, despite the fact that anatomically no sphincter has ever been demonstrated at the lower end of the esophagus. Dornhorst et al[7] showed that over a small 5 mm area the muscularis mucosa pulled the lax mucosa at the cardia into some flap or valve. They discounted all other mechanisms. However, increasing the angle of entry of the esophagus into the stomach prevents reflux, as has been shown on the operating table and also experimentally with an isolated stomach and esophagus. Barrett[6] states that the angulation causes a mucosal valve formation and that the oblique stomach muscles whose apex is at the incisura plus a tight gastric artery maintains competency.

Undoubtedly, all the extrinsic and intrinsic mechanisms work in unison and probably all are mediated by the autonomic nervous system to keep the cardia in a subdiaphragmatic position and to prevent reflux of gastric contents.

When there is a failure of function of the gastro-esophageal junction permitting a reflux of acid-pepsin into the esophagus a series of events beginning with esophagitis and ending with stricture take place. If the sphincter mechanism is intact, whatever the position of the cardia, no reflux will occur and the patient will be asymptomatic.

Clinical Features

Vomiting is the main feature, occurring in 90% of the cases, either during or after feeds. This is frequently projectile in nature, containing much mucus, is often blood-stained, but rarely contains bile. The infants are hungry but fail to thrive. Later on vomiting may be associated with coughing, emotion or recumbency.

Carré and Smellie[1] have divided their cases into 3 groups:

1) Benign type— symptoms have ceased by the age of 2.

2) Cases in which symptoms persisted until the age of 4. In addition to vomiting, dysphagia was present, as was anemia.

3) Cases complicated by stricture, and symptoms here were mainly dysphagia.

In the differential diagnosis pyloric stenosis has to be considered, but hiatus hernia is distinguished by a history of vomiting from birth, altered blood in vomitus, no tumor and occasionally the dramatic clinical response to nursing propped up (in 4 of 62 cases operated upon by Waterston[10] there was an associated pyloric stenosis). Also entering into the differential diagnosis are serophagia, congenital intestinal obstruction, feeding problems, cerebral irritation, peptic ulcer and pertussis.

Management

Medical management consists in maintaining the child upright day and night. McCreath[13] maintains that the gastric air bubble with a patient in the left lateral or upright position acts effectively to increase the angle of entry of the esophagus into the stomach and also as a plug to prevent regurgitation. As 75% clear up by the age of 2, and most of the remainder by 4, no further therapy is necessary. (One author has described a definite flattening of the top of the head as secondary to the upright position, and Smellie[9] commented about the possibility of deformities of the bony pelvis, especially in females, developing).

Surgical treatment is required then for the major complications such as severe esophagitis and stricture formation. The incidence of cases developing esophagitis (in adults and children) averaged 43% in 1177 recorded cases of all ages and those with stricture averaged 17.7% in this same series. Of Waterston's[10] 132 cases followed at Great Ormond St. 15% had strictures— 62 of his cases underwent surgery.

That strictures can form early is seen in Belsey's[11] case of a 6 week old infant. Waterston[10] even postulates that the process might begin in utero, for here we have a high gastric acid in an upside-down child and if associated with incompetency of the gastro-esophageal valve mechanism, the ideal situation for reflux esophagitis developing is obtained. Other reports in the literature also document the rapid development of stricture.

Surgery is recommended in all cases of esophagitis not responding well to treatment, as evidenced clinically and esophagoscopically and in cases where the hernia is large. (Some authors have swung all the way advocating surgery for all cases of hiatus hernia). And it should be done early before secondary fibrotic changes and stricture of the esophagus have developed. (strictures

per se, without continuing esophagitis can be treated by dilation satisfactorily).

The surgical attack is designed to combat the cause — i.e. incompetency at the gastro-esophageal junction. Various authors have designed different operations to correct what they think is the most important cause of incompetency and thus we have repairs of Allison[2], Barrett[6], Harrington[3], Husfeldt[12], etc. Actually all the approaches either directly or indirectly increase the angle of entry of the esophagus into the stomach and this causes a supposed pouting of mucous which is said to have a valvular action. At the same time the various methods of reconstruction remove or invaginate the hernial sac, tighten the phreno-esophageal ligaments by intent or accidentally, and some (Allison[2]) tighten the crural fibres forming the margins of the hiatus.

Case Report

Master N. B. was born 22 June 1950 about 2 months prematurely and weighed 3 lb. 7 oz. He was a feeding problem in that he vomited considerably and did not gain weight adequately in the immediate neonatal period. At 3½ months of age he weighed 7 lb. 9 oz., was pale and wan, and his

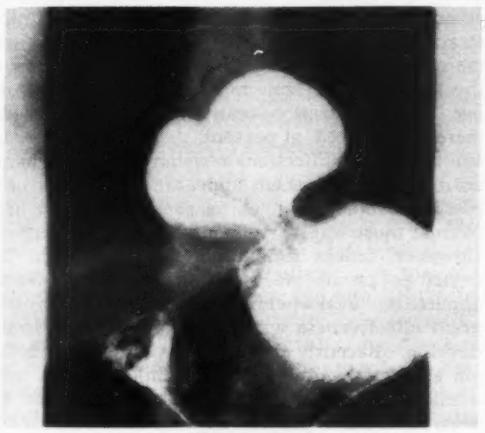

Figure 1

Hb was 67% (Sahli) and a right inguinal hernia was present. At 9 months of age he weighed 15 lb. 3 oz., was unable to sit properly, and his posterior fontanelle was still open. He thrived well subsequently. In July 1953 bilateral inguinal herniorraphy and circumcision were carried out. His wounds had to be resutured because of bleeding, but no active bleeding points were found, nor was any abnormality in the bleeding and clotting time noted. As no further bleeding occurred, more complete blood studies were not performed.

He progressed satisfactorily following his operation and after the usual follow-up visits was not seen again until November 1954, when his mother brought him in with a complaint of tiring easily after short periods of play and of short-lasting bouts of abdominal pain which occurred 1 - 2 times a week. Examination revealed a pale child but nothing else. Hb was 50%. He was placed on iron, and 3 stool specimens were checked for occult blood, the first 2 being negative and the last showing 5% blood. Admission to hospital was suggested for investigation. Sigmoidoscopy, Barium enema, Small bowel series, esophagus and stomach were checked and the only positive finding was a large hiatus hernia 7 - 8 cms. in diameter. (Fig. 1) Hb. 64% (C.I. - .75). Prothrombin time was slightly decreased, and bleeding and clotting times were normal. A diagnosis of esophagitis or peptic erosion of the thoracic stomach of a sliding hiatus hernia with secondary anemia was entertained. The child was discharged from hospital on a regime of antacids, high caloric and high vitamin diet with supplemental iron. He was to return later for repair of the hernia.

On 3rd June, 1955 the sliding hiatus hernia was repaired through a left thoraco-abdominal approach using Allison's[2] technic. Abdominal exploration was negative. He had an uneventful post-operative course and was discharged 10 days later. Post-operative films showed a good reduction of the hernia (fig. 2).

Figure 2

Since operation he has been very well. There have been no more attacks of the old abdominal pains and his blood count has been satisfactory.

The above case exemplifies a severe and insidious secondary anemia resulting from either peptic ulceration of the thoracic gastric portion of a sliding hiatus hernia or severe esophagitis. In retrospect most likely his feeding problems and failure to thrive as an infant were due to this condition. Vomiting was not a feature in this case, but pain and anemia were.

A thoraco-abdominal approach was used in order to facilitate abdominal exploration to rule out bleeding Meckel's diverticulum, other causes of bleeding having been for the most part ruled out preoperatively.

(Continued on page 60)

Paediatrics

Staphylococcal Infections

W. D. Bowman, M.D.*

The trend of increasing staphylococcal resistance to antibiotics, which has been so apparent in the last seven or eight years, has continued unabated during the past year. The whole medical profession is becoming increasingly aware of the fact that, unless measures are taken to preserve the usefulness of more recently discovered antibiotics, we may soon have no effective treatment for major staphylococcal infections.

Staphylococcal infections are of greater importance to the pediatrician than to any other group of physicians because of the peculiar susceptibility of the child under two years to this organism and for his propensity to severe infection. The problem is not just one of minor skin infection, but of overwhelming pneumonia, insidious osteomyelitis, and rapidly fatal gastro-enteritis.

Numerous reports show the importance of the staphylococcus in pneumonia in infants and small children. Disney et al, showed that in 35 out of 88 infants admitted to a Birmingham hospital with pneumonia the staphylococcus was the etiological agent. In their experience, if there are clinical signs of pulmonary consolidation in a child under two years of age, there are three chances to one that he has a stapylococcal pneumonia. Utilizing a technique of lung puncture and smear and culture of "lung juice" they were able to make a definitive diagnosis very early. This may in fact account for their rather low mortality rate of 22 per cent compared to the usually reported 50 per cent. Briggs collected 27 cases of staphylococcal pneumonia in infants in Winnipeg over a two and a half year period showing the frequency of this serious disease.

The staphylococcus has long been known as the occasional primary cause of gastro-enteritis. In the past few years staphylococcal enteritis has become increasingly common as a dangerous complication of broad spectrum antibiotic therapy. There are numerous reports of acute hemorrhagic enteritis, often fatal, occurring during the administration of one of the tetracyclines or chloramphenicol. Presumably, destruction of the normal bacterial flora of the intestine leads to very ready entry of the staphylococcus. Treatment is of an emergency nature and involves fluid replacement as for any severe diarrhea, cessation of the broad spectrum antibiotic at fault, and the administration of an antibiotic such as erythromycin which is effective against the staphylococcus, but ineffective against gram negative intestinal bacteria.

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The severity of staphylococcal infections in childhood makes the relative lack of effective antibiotic treatment a worrying situation for the pediatrician, and often a tragic one for the child. This is a situation for the production of which the pediatrician and his medical and surgical confreres must assume the responsibility. Indiscriminate use of these valuable drugs has produced the situation which we now must face.

As early as 1949 penicillin was virtually ineffective against staphylococcal infections in the maternity wards of this city. Temporarily aureomycin and related tetracyclines were effective, but by 1952 resistance to these drugs was occurring, and today it is rare indeed to find a hospital strain of staphylococcus responsive to any of the tetracyclines. Erythromycin has been in use for barely three years and already resistant organisms are occurring and their incidence will undoubtedly increase, unless the use of this drug is curtailed. That cautious use of a drug will delay the development of resistant strains of staphylococci is demonstrated by the continued sensitivity of most strains to chloromycetin. As this drug is used more widely following the present realization of the true rarity of bone marrow depression following its administration, resistance will undoubtedly increase. Indeed, at present, the occasional organism appears in infections resistant to all the above antibiotics. The recent appearance of a new antibiotic, novobiocin, gives us some reason to hope to treat these totally resistant infections effectively. However, unless it is used sparingly, as a last resort in proven resistant infections, or during apparently overwhelming infection, its present, great effectiveness will be lost as resistant strains develop. Recently the combination of oleandomycin and tetracycline (Sigmamycin) has been made available. In the test tube this combination has been reported to prevent development of antibiotic resistant staphylococci. Only time and clinical use of the drug combination will determine whether this is true in human infection.

The problem of staphylococcal antibiotic resistance is world wide and has become so acute that in New Zealand legislative action has been taken to curtail the use of erythromycin by prohibiting its use outside of hospitals. One questions how effective this measure will be in delaying emergence of resistant strains, unless a great deal of self control is exerted in its use within the hospital. Experience has shown that it is in the hospital strains of staphylococci that antibiotic resistance first develops and spreads then to the general community.

Perhaps the brightest spot in this picture is that antibiotic resistance in a staphylococcal population is not necessarily permanent. That total

withdrawal of an antibiotic from use can cause reversion from resistance to sensitivity was shown in a study from Newcastle not yet published. In 1953 the staphylococcal hospital strains in a maternity hospital in that city were 90 per cent resistant to penicillin. Three months after cessation of penicillin administration 90 per cent of the hospital strains were penicillin sensitive. This suggests that a partial answer to the problem might be the rotation of antibiotics in use over a three or six month period.

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Tuberculosis in Infants and Children

W. C. Taylor, M.B., Ch.B.

Although preventive measures have reduced childhood tuberculosis in the Winnipeg area to small proportions, an explosive outbreak of this infection recently occurred in children attending a rural Manitoba school. All the affected children received sanatorium care and specific chemotherapy, however mild their symptoms. With this problem in mind, it is appropriate to consider current opinion on the management of primary tuberculosis. The management of tuberculous meningitis, miliary tuberculosis, and congenital tuberculosis will also be considered.

Primary Tuberculosis

Lincoln[1] demonstrated a mortality rate of 21.5 per cent in children admitted to Bellevue Hospital with primary pulmonary tuberculosis from 1930-1946. During the period 1947 - 1951 when Streptomycin and P.A.S. were available, the mortality rate dropped to 5.0 per cent, and since the introduction of isoniazid the mortality rate dropped to 1.5 per cent. These spectacular results were achieved by using specific therapy only in cases where complications such as meningitis or miliary spread developed. There is ample confirmation of the high complication and mortality rates of primary tuberculosis treated by bed rest and supportive measures alone. Thus Walker[2] at Great Ormond Street showed that 1 out of every 4 children under 3 years of age admitted with primary pulmonary tuberculosis developed meningitis or miliary spread when specific therapy was not employed. Figures such as these, suggest that in the present state of our knowledge it would be unfair to deny the young child the benefits of specific therapy when a diagnosis of primary pulmonary tuberculosis has been made. Treatment should consist of isoniazid and P.A.S. and could be given on an outpatient basis for 3 - 6 months if the home circumstances are suitable and reinfection eliminated. Streptomycin would be kept in reserve for the very unlikely event of meningitis or miliary spread developing during the course of chemotherapy[3]. It must be remembered that chemotherapy in primary infections probably prevents the development of long term immunity and that following the course of treatment the patient should receive B.C.G. vaccination.

Miliary Tuberculosis and Tuberculous Meningitis

It is generally agreed that effective treatment of these conditions should consist of the earliest possible administration of all three specific drugs. Streptomycin intramuscularly in daily doses of 40 mgm. per kilogram; P.A.S. 4 - 12 Gm. daily; isoniazid 8 - 10 mgm. per kilogram daily. Treatment should be continued until the disease is proved to be inactive (usually up to 18 months). American opinion favours abandoning intrathecal streptomycin but Smith[4] and Lorber[5] in England are opposed to this change. Since Smith[6] in 1950 reported on the beneficial "fibrinolytic" effects of tuberculin in cases of tuberculosis with subarachnoid block, there have been many favourable reports on the use of streptokinase, trypsin, and A.C.T.H. to produce the same effects. Smith continues to advocate the extensive use of intrathecal tuberculin. Recent reports have also favoured the use of cortisone given systemically in advanced cases.

Congenital Tuberculosis

Death from miliary tuberculosis can occur in the infant within 8 days of birth[7]. The symptoms of congenital tuberculosis usually start during the first month of life, and are those common to any infection in the new born period, with anorexia, vomiting, loss of weight and temperature. Since Streptomycin became available about half of the reported cases have died within 4 weeks of the first signs of illness. The Mantoux test is unreliable at this age because of B.C.G. vaccination at birth, and because Mantoux conversion can be delayed until the age of 7 months in some cases[8]. The clinical condition of the mother and the presence of tuberculous foci in the placenta are not reliable indications that the baby will be affected. All infants born to tuberculous mothers should be kept under observation for 2 months in a non tuberculous environment; B.C.G. vaccination should be carried out immediately and any departure from normal health should require at least radiography of the chest and bacteriological examination of gastric washings. Confirmation of the diagnosis will require treatment of the infant with streptomycin and isoniazid for 6 months. P.A.S. causes severe digestive upsets in the new born.

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The Present Status of Poliomyelitis Prevention

Progress in Paediatrics 1956

Percy Barsky, M.D.*

Experimental research in poliomyelitis has culminated in the development of a vaccine which will combat paralysis. The Salk Vaccine is today, the only large scale control measure which will provide substantial immunity against the paralytic form of this disease. The vaccine now used is a "Killed Virus" trivalent, formalinized vaccine, and every lot released for use is carefully checked for safety and potency. Properly prepared vaccine was administered to at least 15 million children during the first year of its general availability, and discussion of the safety of the present vaccine is now an academic matter

The Francis[4] Ann Arbor report pointed out that the case incidence of poliomyelitis was highest in the 5 to 9 year age group, and recommended that children in this category be given top priority in receiving the vaccine. These should then be followed by the 0 - 4, 10 - 14, and 15 - 19 year age group. The rate of infection has been shown[5] to be 60% higher among pregnant than non pregnant women, indicating this as the next group for immunization. Because the new-born has a high degree of protection as the result of maternal antibodies transplacentally transmitted, it has been suggested that vaccination against paralytic poliomyelitis be started sometime during the second six months of life. As presently constituted the ideal dosage schedule is two 1 cc. doses intramuscularly, spaced 2 to 6 weeks apart. A booster dose of 1 cc. is given at least 7 months to 1 year later.

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Contraindications to the administration of Salk Vaccine have been slightly revised and it is advised that the vaccine not be given during the course of a major illness. Persons with symptoms of minor illness (sore throat, fever, etc.) should not receive the vaccine during poliomyelitis epidemics, but "Minor Illness" in nonpoliomyelitis seasons is no longer a contraindication. It should not be given to persons in a household where a case of poliomyelitis has just occurred since there is the minimal risk that the process of injection will do harm in persons in whom it may be presumed that virus is already multiplying. Since immunity is a specific reaction there are no theoretical objections to giving the vaccine at the same time as other immunizing agents.

Canadian experience with Salk Vaccine in 1955 has confirmed its effectiveness. Among 589,000 children who received 2 or more doses of this material, there were five observed cases of paralytic poliomyelitis. Among 885,000 unvaccinated children there were 51 cases, indicating an 85% effectiveness.

The World Health Organization has recommended that all countries with a high incidence of poliomyelitis should plan to bring vaccination into routine use at an early date.

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Pathology

Progress in Clinical Pathology — 1956

P. T. Green, M.D., F.R.C.P. (C)

While no impressive major advances have been made in this field during the past year, there have been some noteworthy reports and a shift of emphasis to some newer aspects of clinical pathology. As more and more journals become devoted to this subject, it becomes increasingly difficult to keep up with the augmented flow of literature. Recent additions to this field are Clinical Chemistry; Clinica Chimica Acta, and there is apparently pending a British Journal of Clinical Chemistry. As a result of all this increased knowledge there is a new hospital personality — the clinical chemist —whose stature is rapidly increasing.

Biochemistry

A new, bizarre and rare clinical syndrome has appeared and a biochemical method of confirming it. Thorson in 1954 drew attention to the clinical features that are often associated with carcinoid tumors that have metastasized, and since then a number of reports have appeared of similar cases[1, 2, 3]. In these patients there is a syndrome consisting of episodes of flushing of the face and upper half of the body, appearance of marked bluish-red cyanosis there, and the development of cutaneous telangiectases. Periodic episodes of asthmatoid dyspnea occur, and bouts of nausea and diarrhoea. Murmurs appear at the pulmonary and sometimes the tricuspid area and evidence of pulmonary hypertension on X-ray and cardiogram develop. The syndrome progresses over a number of years and death from cor pulmonale usually results. At postmortem a lesion like fibroelastosis is found in the right heart, although no elastic fibres are found in this, and stenosis of pulmonary and sometimes of the tricuspid valve is seen. Carcinoid tumor, generally arising in the appendix or small intestine is found with hepatic metastases. The syndrome is apparently due to the formation of excess serotonin by the tumors, this produces vasoconstriction of the pulmonary vessels, and damage to the right heart.

Serotonin is 5-hydroxytryptamine, and it is synthesized in the enterochromaffin cells. It is found in high concentration in gut, nervous system, and in the spleen and also in platelets. Serotonin is synthesized from tryptophane and is apparently liberated slowly into the capillary blood, the platelets appear to absorb it and carry it in bound form so that it is not rapidly destroyed by amine oxidase. The physiological role of serotonin is not settled. Liberation by platelets probably produces local vasoconstriction and may help in hemostasis. Fenichel and Seagers[1] have shown that the serotonin content of the platelets is responsible for clot retraction and apparently this is the only component of the platelets that produces this phenomenon. Serum levels of serotonin are low in thrombocytopenic purpura; and oddly enough in some cases of thrombocytosis and in some hemophilias[5, 6]. Serotonin is an antidiuretic by virtue of constriction of the renal vessels that it induces. It has been indicated as an agent in the production of hypertension, but has not been pronounced guilty. Great interest has been aroused in the possible role of this substance in cerebral transmission of nerve impulses[7]. It has been suggested that certain drugs such as ergot, lysergic acid, yohimbine, atropine and reserpine may function by augmenting or inhibiting the action of serotonin in the central nervous system. Reserpine seems to produce liberation of the serotonin from the brain, so that its brain content decreases and urine output rises. At first a serotonin effect is produced from this liberation, but as the liberated serotonin is destroyed serotonin depletion results[8]. Wilkins has reviewed the subject of antiserotonins[9]. Particular interest arises in this subject because from many sources have come suggestions that schizophrenia may be in part a disease due to abnormal metabolism of this group of substances. Normally about 1% of the daily tryptophane intake is apparently converted into serotonin. In the carcinoid syndrome as much as 60% may be so converted, and tryptophane deficiency may develop[10].

The main end-product of serotonin metabolism appears to be 5-hydroxyindolacetic acid (5-HHA) and this appears in the urine, some 5 - 8 mg. a day being excreted. Methods have recently been described for assay of this substance[11] and this enables one to confirm the diagnosis of carcinoid tumor. It is likely that much interesting data will appear dealing with the metabolism of these phenolamines in various diseases.

We have had the opportunity of trying this test on urine from two cases of carcinoid this year— one supplied (with the reagent) by Dr. Nickerson, in which no increase in 5-HHA was detected— possibly a nonsecreting tumor — and another case supplied by Dr. Lange in which large amounts were present in the urine.

A simple method for detection of urine glucose is now familiar to all physicians — a small strip of paper is dunked into the urine and turns color if glucose is present. The rationale of this test is that the glucose oxidase and the peroxidase present in the paper react with b-glucose to produce nascent oxygen and this reacts with orthotolidine present to turn it blue. Glucose is usually excreted as a-glucose and must stand in the bladder or bottle for a time before it is converted into b-glucose. Hence too fresh urines might possibly give false-negative tests. The simplicity of this test is a boon to clinicians, diabetic patients and

technicians. What will become of those rare non-glucose melliturias which we will no longer detect?

The enzymologist is now a specialist amongst the biochemists, and methods are rapidly being developed that bring into the clinical laboratory estimations of enzymes that were previously known by name only to second year medical students and professors. Amylases, lipases, phosphatases, have long been known to the physician. More recently adolases, SGOT (serum glutamic oxaloacetic transaminase) lactic acid dehydrogenase (LAD) and phosphohexose isomerase (PHI) have entered the lists. Originally of interest to the cancer researcher, they have been found to vary in other diseases where they may be of some diagnostic and prognostic aid to the clinician. Serum aldolase, an enzyme that condenses aldehydes with ketotriose part of diphosphates, has been found increased in carcinoma of the prostate and some have thought it is more reliable than acid phosphatase. 90% of myopathies are said to show an increase, whereas those due to neurological lesions show no increase. High values, however, have occurred in such a host of diseases (hemolytic anemias, Myxedema, various infections, various tissue infarctions, leucemias, etc.) that it is doubtful whether it will become a useful laboratory test[12].

SGOT is an enzyme that is present in high concentration in cardiac muscle, diminishing in concentration in skeletal muscle, brain, liver and kidney. Lung has little. Apparently, an increase in serum levels ocurs only when there has been damage to any of the above organs. A rapid rise occurs following myocardial infarction, and it has been suggested that assay of this enzyme may be useful where a recent infarct is suspected, but the E.C.G. is not diagnostic; or where there is some difficulty in differentiating between a myocardial infarct and a pulmonary infarct—(in a pulmonary infarct the values do not rise[13]). Within a few days after infarction, the values have returned to normal.

LAD is responsible for the interconversion of lactate-pyruvate. Most tissues contain this enzyme, and so it tends to be increased in many diseases where damage to tissues occurs. In hepatic damage levels tend to rise to comparatively high levels, whereas in obstructive jaundice they do not. In carcinomas it is elevated in about 50% of cases. Blanchaer feels that it is particularly in liver metastases that elevated levels are prone to occur[14]. In myocardial infarction levels promptly rise, and return to normal in a few days[15, 28]. In acute leucemias and chronic myelogenous leucemia increased values are found, whereas in chronic lymphatic leucemia and multiple myeloma they are normal. In the lymphomas only some are elevated, although they tend to rise later in the disease. Levels of these enzymes in this group of diseases may be of some value in adjusting therapy[15]. In renal failure, the level rises parallel to the BUN.

Lack of organ specificity of the enzymes somewhat limits their usefulness. However, it is probably a matter of time before methods are developed that will permit closer diagnosis of organ damage by more specific enzymes that are released into the blood.

Fibrinolytic enzymes are reviewed by Astrup[16]; proteolytic enzymes in urine continue to be studied; and more attention is being paid to lipoproteinases. Esterases continue to catch the interest of various investigators — cholinesterases, cholesterolase, b - glucoronidase, hyaluronidase, etc., but have not gained widespread clinical acceptance.

Reports continue to appear on various protein fractions, by electrophoresis, and of various fractions without too much new of clinical interest being added, except for determination of lipoprotein fractions. Mucoproteins, proteins rich in sugar content, have been of some concern for the past five years, and are reconsidered[17, 18 - 29, 30]. A group of abnormal proteins which have such peculiar properties as crystallizing out in the cold, odd solubility, and effects on clotting mechanisms have been given a number of designations (cryoglobulins, macroglobulins[19]). A general term — paraproteins — has been used for the group[20]. These proteins are seen particularly in those diseases that are associated with grossly abnormal protein synthesis (myeloma, cirrhosis of the liver, etc.), but have been reported as the only abnormal finding and apparently responsible for clinical manifestations such as Raynaudism, and hemorrhagic diathesis. The use of 1131 labelled fat as a method of studying intestinal absorption appears to be a good method, and would be welcomed by the poor technician who would no longer have to process the mass of feces required for fat balance studies[24].

Chromatographic methods for urine excretion of aminoacids will apparently be useful in the diagnosis of some rare syndromes associated with disturbed aminoacid excretion pattern, and possibly in some other diseases as well.

Hematology

Tagging of red cells with radiochromium has now become a reasonably simple procedure. The chromium becomes fixed to the red cells and remains attached until the cell is destroyed; however, there is a daily loss of about 1% which appears to be reasonably constant. This procedure, in which the patient's own red cells can be used, enables one to study red cell survival in patients, and is a tool in the diagnosis of hemolytic anemias[21]. It is also a useful method for determining red cell and total blood volume, and may be especially useful in patients because once the cells are tagged, the volume can be determined serially for several

days. This has been applied to treatment in polycythemia[22] and to serial measurements in non-surgical patients[23]. Splenic sequestration of red cells can be ascertained by the increase in radioactivity over that organ as blood levels decrease[25].

The use of B12 tagged with radiocobalt has been advocated by Schilling for the diagnosis of pernicious anemia. The patient is "saturated" by injecting a large dose of ordinary B12; later he is fed a tagged dose of B12 and the amount of tagged B12 excreted in the urine is measured. The theory is that in pernicious anemia very little B12 will be absorbed, and hence little excreted, whereas those who have intrinsic factor will absorb and excrete comparatively large amounts of it. Confirmation is sought by a second test in which active intrinsic factor is given with the oral dose of tagged B12 when excretion should now be normal. Unfortunately while this may be a useful test, it does not seem to be nearly as accurate as hoped; some cases of sprue and other malabsorption syndromes absorb and excrete only low normal amounts, although the amount is not increased by feeding intrinsic factor. Unfortunately, some cases of pernicious anemia do not show an increase with intrinsic factor[26]. However, the test might be useful in those patients who have been treated as pernicious anemia and who now have normal hematological findings and achlorhydria. A good B12 absorption under these circumstances would be good presumptive evidence that they never did have pernicious anemia.

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Pathology — 1956

D. W. Penner, M.D.

Pathology is the specialty which deals with the study of disease. It is customary to divide it into two broad groups, Pathologic Anatomy and Clinical Pathology. The former deals with the gross and microscopic changes of disease, the latter with such subspecialties as Biochemistry, Hematology and Parasitology (which are morphology in part).

This review will deal with Pathologic Anatomy only. This is perhaps an unfortunate term, for it implies that we are dealing with dead things and static structures. A hundred years ago this concept was largely true and its application was extremely fruitful in establishing basic understanding of disease processes and in the advancement of medicine along scientific lines. Today this purely morphologic concept is no longer sufficient. Morbid anatomy and histology are still important but must be related to function, so that the study of disease does not become the static picture seen in death, but rather an understanding of these processes as they occur during life. Recent technical procedures such as liver and kidney biopsies, which attempt to correlate morphology and histochemical studies with signs and symptoms during life, have contributed greatly to our knowledge of these organs in health and disease.

It is difficult for a reviewer to select one or two publications as outstanding contributions when most of the work done is a continuation and amplification of previous work. For this reason it was decided to review certain trends in new methods being developed together with a review of the present status of Cytology.

Radio-Autographs

The use of radio-autographs for the localization of tracers in tissues in relation to disease and physiology continues to be a useful technique. There are many publications on this subject including the one by J. C. Osbourne and K. Kowalewski (Surg. Gyn. and Obs. 103: 38, 1956.) in which the uptake of radiosulfur in fractures of the humerus in rat was studied.

Fluorescence Microscope

The use of the fluorescence microscope has recently led to an interesting observation. By using this technique R. C. Mellors and L. G. Ortega (Am. J. Path. 32: 455-599, 1956) felt that they were able to establish "that gamma globulins are localized in the glomerular lesions of lipid nephrosis and glomerulonephritis in man." The concept that these lesions are a result of immuno-allergic reaction in the glomeruli has been held for many years, but confirmatory evidence has hitherto been lacking.

Needle Aspiration

Needle aspiration of various living tissues is a relatively new procedure which is being employed to study histology and correlate it with the clinical course of disease. By using various histochemical techniques still further information is obtained. In an editorial of the Canadian Medical Association Journal (74: 520, 1956) a brief review of needle aspiration of the kidney is presented. First

reported in 1951, it was concluded to be an unsatisfactory technique. Now it is considered a relatively safe and a very useful method of obtaining kidney biopsy for histologic, histochemical and bacteriologic study.

An additional refinement of technique of kidney biopsy as described by G. E. Mortimore and J. Hopper (Am. J. Roentgenol. 75: 953-955, 1956) allows for localization of the kidney by direct screening after the injection of a contrast medium.

W. Ackerman (Ann. Surg. 143: 373-385, 1956) describes a technique for aspiration biopsy from vertebral bodies showing demonstrable lesions by roentgen ray. This, of course, is not new, but demonstrates the usefulness of the procedure.

Cytology

Tremendous advances have been made in cytologic studies. Some of these methods of study are purely morphologic, particularly those used for the detection of cancer. Others employ histo-chemistry, tissue culture and studies of cell metabolism.

Cytology in Cancer

At the recent International Cancer Cytology Congress (October, 1956) held in Chicago the entire subject was reviewed and the practical application of cytology for screening procedures and definitive diagnosis was clarified.

Urinary Tract

Although carcinoma of the kidney has been demonstrated by cytologic methods it is not a practical procedure. Most carcinomas of the urinary bladder can be fairly readily detected by examination of urine and the chief practical application is in following treated cases where repeated cystoscopic examinations may be considered undesirable.

Effusions

Differentiation between neoplastic and non-neoplastic effusion is often difficult, and false positive diagnoses are made by even the most experienced observers. However, the incidence of this error is sufficiently low to make it a very practical procedure. It is rapidly becoming a routine procedure in the investigation of effusion from all sites. Reported incidence of correct positives is from 40 - 85% and the average incidence of reported false positives is 5% or less.

Gastro-Intestinal Tract

A. **Colon:** Although colonic washings have been used to demonstrate carcinoma, it is as yet not considered to be practical for routine use.

B. **Stomach:** In selected cases and using special care gastric washings can be useful for the detection of carcinoma. The material must be fixed immediately after removal. Even with the greatest of care and using added devices such as balloons and brushes the percentage of positive cytology in the presence of carcinoma remains fairly low, although reported incidence of positives varies from 20 - 90%.

C. **Oesophagus:** Cytology is a useful procedure. It has been suggested that oesophageal washings be done using a Levine tube because the technique is simple and yet yields sufficiently good results to justify using it as a preliminary procedure in all cases of dysphagia or suspected carcinoma. Washings should be taken routinely during oesophagoscopy in all cases in which adequate biopsies cannot be obtained.

Respiratory System

A. Sputum: Much evidence has now accumulated pointing to the value of sputum for the detection of lung cancer. Approximately 50% of lung carcinomas can be detected by this method. Although care must be taken in the method of collection (saliva and post-nasal discharge are useless), it remains a simple procedure which has definite practical application. When considering cytologic diagnosis, it is important to establish reliability versus sensitivity for the particular organ being examined. For example, the importance of each of these is quite different in pulmonary and cervical smears. In the cervix, if the aim is a screening method, it is important to pick up all suspicious lesions in which definitive diagnosis can easily be established by a tissue biopsy. In the lung a false positive may well lead to exploration and resection. Because of this difference Dr. John R. McDonald (Mayo Clinic) repeatedly emphasizes the need for reliability in examination of sputum which means sacrificing some degree of sensitivity.

B. Bronchial washings or secretions: A very valuable and useful procedure which should be performed in every suspicious case in which a bronchoscopic examination is performed. Both reliability and sensitivity are generally reported to be better than for sputum. False positives can occur in cases previously bronchoscoped or irradiated and also in cases of chronic infection and bronchiectasis. These features should always be noted when specimens are submitted for examination.

Aspiration Biopsy

This subject was reviewed in a panel discussion moderated by Dr. John T. Godwin. This procedure, which consists of using a needle and syringe to aspirate tumor masses, has been employed in certain areas for many years. Like cytologic methods this method has not been widely accepted and the majority of pathologists have had no training or experience in this technique. The alleged danger of disseminating tumor has never been proven. In the opinion of the reviewer this is a valuable procedure which is most useful in selected cases and should be used more as a diagnostic tool.

Female Reproductive System

A tremendous amount of information has now been accumulated in relation to both corpus and cervical carcinomas. It is generally accepted that this procedure is a valuable diagnostic adjunct in

selected cases. The method in trained hands is highly reliable, and in the cervix can be very sensitive. In corpus carcinoma it is slightly less reliable and yields a considerably smaller percentage of positives in cancer patients.

Still under considerable controversy is the value of cytologic examination in mass population screening for cervical carcinoma. In 1950 (C.M.A.J. 62: 344-348, 1950) the reviewer considered that a properly taken cervical smear (scraping from the cervix, not aspiration of the vault) was a more reliable method of excluding cervical carcinoma than a random biopsy; it was also suggested that a mass survey of the female population was not practical.

Now the information obtained in several large surveys is available, and of these the most important is that of Cyrus C. Erickson et al (J.A.M.A. 162: 167, 1956). This and other similar but smaller surveys have led the reviewer to reconsider his previous opinion. In introducing the subject Erickson states:

"This method of exfoliative cytology, introduced by Papanicolaou and Traut, was applied to material obtained by vaginal aspiration from 108,000 women in Shelby County (including Memphis), Tennessee, for the purpose of detecting various types and stages of carcinoma. The preparations for this large-scale screening program necessarily included an extensive educational campaign and required the cooperation of many organizations. Results were reported to the physician who obtained the smears; he in turn informed the women tested. A woman whose smears showed suspicious cells was advised to have this examination repeated and to have tissue studies in addition. Of the 108,000 women, 33,000 were examined a second time and more than 8,000 a third time.

"The program so far has resulted in the finding of 393 intraepithelial carcinomas, of which 353 had not been suspected, and 373 invasive uterine cancers, of which 112 had not been suspected. The program is also expected to yield new data on etiological factors and on the relation of preinvasive to intraepithelial lesions."

This preliminary report gives the incidence of carcinoma of the cervix in women over 20 years of age as just below 8 per 1,000. In this re-examination the rate was much less having dropped to 2.5 per 1,000, the majority of these being intraepithelial. Considering that vaginal aspirations were taken both the sensitivity and the reliability of the procedure in this series, appears to have been very good. Only 6/10th of 1% of the total were false positives. The incidence of false negatives has not yet been stated. These figures are even more impressive, when it is realized the program was set up as a case finding (screening) procedure and not for the specific diagnosis of suspected cancer.

Many problems still remain and the final report of the various surveys will be awaited with great interest. It has been demonstrated, however, that a mass survey for finding cervical carcinomas is practical.

Several other surveys reported at the Cytology Congress gave the following incidence:

Strang Clinic

Area	Carcinoma Incidence per 1,000	Number of cases Surveyed
Strang Clinic	2.5 (66% patients	40,000
New York	are Jewish)	
Honolulu	5.5	24.000
San Diego	6.5	12,000

Discussion on the Problem of Cytologic Diagnosis

Although Cytology has been used for the diagnosis of tumor for over one hundred years it is still not widely used, although it is estimated that approximately two million cases are studied by Cytology each year by American Pathologists, The majority of this work is done by a relatively small number of pathologists usually located in large centers. Only recently has Cytology been introduced as a necessary part of pathologic training and many of the older pathologists are not familiar with this procedure.

Who is Competent to Interpret Cytologic Smears?

Obviously only those people who have had adequate training and experience can interpret cytologic smears. If the costs are to be reduced and the volume increased, technician screeners must be used. These must be adequately trained and must work under adequate supervision. A pathologist is probably better equipped to learn to interpret smears because of his general training in tissue diagnosis, hematology, etc., but it still requires considerable special training and experience to become competent. Interpretation, except in rare circumstances is not an office procedure.

Reliability

The procedure to be of value must be reliable. Negative reports have little meaning other than the fact that no tumor cells were found in the material submitted. Positive diagnosis should always be confirmed by tissue biopsy, if at all possible. Certainly, no definitive treatment should ever be instigated in cases of uterine carcinoma diagnosed by smear alone. Biopsy is mandatory to definitely establish the true diagnosis of pre-invasive or invasive carcinoma.

Cost

From the pathologists' standpoint the examination of smears requires considerable more time than a standard histologic preparation and is therefore more expensive. The only way to reduce the cost and increase the volume is to use technician screeners. These must of course be trained specifically in this field to learn to recognize abnormal cells which are marked. All abnormal smears are then checked by the pathologist or cytologist. The average cost per set of slides for vaginal smears in the United States, where technician screeners are employed, is three to four dollars. The cost in Manitoba for this procedure has recently been set as $3.50.

Abstracts from the Literature

The Problem of Hiatus Hernia: The Place of Radiology. Piper, A. E. M. J. Australia, 2: 126 (July) 1956.

Para-esophageal hernia (indirect) and sliding hernia (direct) are described. The manoeuvers carried out by the radiologist are designed to raise the intra-abdominal pressure without raising the intra-thoracic pressure, to ensure favorable conditions for herniation of the cardia or for reflux. The author favors the erect lateral toe-touching position, with pulling on the soles of the feet if possible, and coughing. Different manoeuvres with the patient supine and prone are also used. The same patient may have easily demonstrable herniation at one time and not another. Herniation may be more pronounced with fatigue. At the cardia there may be a pouch without reflux, the phrenic ampulla, or reflux without a demonstrable pouch. This latter group may have a higher insertion of the cardia on the stomach. These patients are subject to esophagitis, which cannot be radiologically diagnosed with certainty. The term congenital short esophagus has been loosely used in association with hiatus hernia. The term implies the esophago-gastric-junction has never been below the diaphragm. Gastric epithelium may be present in the lower esophagus without a demonstrable hiatus hernia. This cannot be diagnosed radiologically. A second type of short esophagus has a sliding hernia with an area of esophagus lined by gastric epithelium, and a stricture at the junction of the squamous and columnar epithelium. This hernia may be diagnosed radiologically. It is believed to be acquired and not congenital. A "short" esophagus on x-ray may be of normal length at operation. The presence or absence of reflux, particularly determines morbidity. Adequate radiological exam. has a small percentage of error, in the demonstration of reflux and hiatus hernia.

Arnold G. Rogers.

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Cardiovascular Collapse in Acute Poliomyelitis. J. A. Hildes, A. Schaberg and A. J. W. Alcock. Circulation, 12: 986-993 (Dec.) 1955.

During the epidemics of 1952 and 1953 a total of 1,359 patients were admitted to the acute poliomyelitis wards of the Winnipeg Municipal Hospitals. Of these, 523 had bulbar involvement, and there were 82 deaths in the whole series. The immediate cause of death in 22 cases was cardiovascular collapse. These 22 cases (20 with autopsy) and 6 others who survived are presented.

Clinically, the syndrome came on acutely within 48 hours after onset of bulbar paralysis (but was not seen in any of 640 cases with spinal paralysis only). Dominant features were alertness, apprehension, hyperthermia, tachycardia, and sometimes transient hypertension. Then followed either gradual or abrupt fall in blood pressure and appearance of cold, clammy, mottled extremities. A rapidly fatal termination with pulmonary edema was common.

At autopsy, there was involvement of the medulla in all cases and pulmonary edema in all but one case. Interstitial myocarditis was present in 75% of the cases. The medullary involvement varied from mild neuronal damage and interstitial inflammatory reaction to diffuse focal destruction; but there was no apparent difference between patients dying of cardiovascular collapse and those in which death was attributed to other causes. On the other hand, myocarditis was more common and more severe in the cases dying of cardiovascular collapse compared with other bulbar cases examined at necropsy. These findings at autopsy, and clinical evidence of vasoconstriction during life, lead the authors to postulate a mechanism for the syndrome. They suggest that vasoconstriction resulting from the medullary lesion, in a patient with an already weakened myocardium from viral myocarditis, leads to acute heart failure and pulmonary edema.

Contrary to the expectation from this hypothesis, treatment with noradrenaline appeared to be of benefit in some cases but this was usually transient.

R. E. Beamish, M.D.

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The Problem of Hiatus Hernia: Surgical Aspects. Morris, K. N. M. J. Australia, 2: 128 (July) 1956.

120 operations for hiatus hernia have been performed. There were 7 females to 1 male. Most patients were over 50. Dyspepsia and pain were the common presenting symptoms. Dysphagea, hematemesis, anemia, and pulmonary symptoms were other ways in which the condition presented. 10 operations carried out through an abdominal route had a 50% recurrence (1941-48). 15 patients had thoracic operations with a similar recurrence rate (1948-51). Since 1951, using Allison's operation, 90 patients have been operated. 4 of the first 30 had a recurrence. No recurrences are known in the last 60. The percentage of patients untraced is not stated.

Patients with hiatus hernia are divided into three groups. Those with no symptoms need no operation. Those with severe symptoms or complications unrelieved by medical treatment, require operation. Those patients who have partial or complete relief of symptoms with medical therapy may come to surgery. Regurgitant esophagitis may lead to stricture. The author is reluctant to

operate on patients with atypical symptoms as the result is often unsatisfactory. Early diagnosis and operation are important in infancy to prevent stricture and esophageal shortening. Anatomical considerations are reviewed. Allison's operation is favored. Patients who have been miserable for years because of the symptoms of hiatus hernia, may now be usually given complete and dramatic relief with surgical treatment.

Arnold G. Rogers.

Book Review

Handbook of Poisons. Lange Medical Publications. Price, $3.00.

Laying no claim to the comprehensiveness of a reference book in toxicology, this modest handbook succeeds in providing a clear and concise summary of the diagnosis and treatment of clinically important poisons. The first section is devoted to emergency management of poisoning, as well as general principles of its treatment and prevention. Subsequent sections deal with agricultural poisons, industrial hazards, household chemicals, medicinal poisons and plant and animal hazards. This method of organization facilitates correlation of poisons and types of exposure.

This book is well indexed, and lends itself readily to quick reference in an emergency. It is a welcome addition to the physician's library.

S. V.

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"Winning Ways With Patients"

The medical assistant in the doctor's office —the receptionist, the secretary, the office nurse— is probably the key figure in shaping the patient's opinion of her employer, his office and practice. Thoughtlessness or carelessness can spell doom for his "personal" public relations. On the other hand, the neat, attractive, pleasant and efficient aide is "good medicine" for any patient, and a PR asset to be prized.

The Canadian Medical Association has available an attractive 20-page booklet, "Winning Ways With Patients," which suggests a sound and proven pattern for good public relations practices for medical assistants. It discusses such topics as the assistant's personality, good grooming, confidence, appointment practices, telephone tactics, the waiting room, handling patients, screening callers, fees, good business practices.

A free copy of "Winning Ways With Patients" may be obtained by writing Mr. L. W. Holmes, Assistant Secretary, The Canadian Medical Association, 150 St. George Street, Toronto 5, Ontario.

Children's Hospital

Winnipeg, Man.

Re: Ward Rounds and Clinical Conferences

1. Weekly Grand Round 11 - 12 a.m. Thursday mornings throughout the year.

2. Medical Staff Clinical Luncheon, the first Friday of each month (except July and August), 12.30 to 2 p.m.

3. Special Tuesday noon conferences 12 to 1,
   First Tuesday of the month, Therapeutics, (Dr. Nickerson).
   Second Tuesday, X-ray Diagnosis, (Dr. Childe).
   Third Tuesday, Cardiac Conferences, (Drs. Ferguson, Medovy, Armstrong, etc.).

All these meetings take place in the Playroom at the East end of the first floor.

The members of the Medical profession are invited to attend these Conference and Ward Rounds.

Obituary

Dr. Owen C. Trainor, 62, died in his office in the Parliament Buildings, Ottawa, on the morning of November 28, while the House was in session. The Prime Minister announced the news to the members and adjourned the debate till 8.00 p.m. Born at Moncton, N.B., Dr. Trainor was educated at St. Dunstan's, Charlottetown, and at McGill University, graduating in Medicine in 1920. He registered in Manitoba in 1922 and after two or three years spent in the Pathology Department of the Winnipeg General Hospital he became pathologist and director of Misericordia Hospital. A few years ago he opened a laboratory for clinical pathology. He was certified as a specialist in pathology by the Royal College of Physicians and Surgeons of Canada. In 1938 he was president of the Winnipeg Medical Society and in 1951 president of the Canadian Hospital Association. He was keenly interested in the Manitoba Hospital Service Association. In 1953 he was elected to represent South Winnipeg in the House of Commons as a Progressive Conservative.

He is survived by his wife and one son, John Michael who is a doctor in New York.

Addresses

Annual Meeting Luncheon Address*

Hon. R. W. Bend
Minister, Dept. of Health and Public Welfare, Manitoba

Mr. Chairman, Ladies and Gentlemen:

The chief aim of our Health Department should be to bring about a maximum of good health for every citizen of Manitoba. I will be the first to say that this happy state of affairs cannot be brought about by public health workers alone. I will be equally quick to say that this goal cannot be reached solely by efforts of private physicians or medical centres. However, it is my humble belief, great strides can be made towards its realization, if an efficient working relationship is established and maintained among all three.

I would like to assure you sir, that so far as I am concerned, no stone will be left unturned in an effort to bring about the closest working relationship between the Department I have the honor to represent, and your Association. Surely two such organizations as ours, motivated by a single, overall, very worthwhile aim, namely, a dedication to the achievement of better health for our citizens, both from the point of view of prevention and of treatment, will be able to work together on a basis of mutual respect and trust. The cornerstone of this working arrangement must be complete frankness one with the other. I assure you most emphatically, that you will receive from us that utmost frankness, and the straight forward approach to our mutual problems. I hope that your Association will always feel free to act in exactly the same way with us.

There may arise occasions when you feel actions of this Department are detrimental to your position as practicing doctors. If such an occasion should arise, I would welcome the opportunity of discussion with members of your executive in order that you may understand why we are pursuing such a course of action. In brief, if a partnership such as ours is to function efficiently, then complete frankness must be the chief policy cementing the partnership. It is my sincere hope that you will never be able to accuse me or my officials of being anything but straightforward in our dealings with you. I believe there is ample evidence at hand to show that the relationship between us has been in the past, and is continuing to be a most happy one. I think the fact that you invited me to say these few words at your luncheon, indicates the pleasant relationship that exists. In addition, your Association has been most kind and generous in arranging meeting rooms for our Health Officers meeting on Monday, in conjunction with your Annual Convention. May I assure you that this co-operation is most sincerely appreciated by our Department, as well as by myself personally.

However, there is a third feature of the relationship that exists between us that has been of invaluable assistance. It is the co-operation and valuable advice willingly given on so many of our advisory bodies. It is not so long ago that I found myself taking over my present position with next to no background in the field of public health. I think that one of the most satisfying experiences during those trying times, was the encouragement, the co-operation, the help and the advice that I was so willingly given by so many members of your Association. It was indeed most gratifying to find that whenever I sought help, either from your Association, or individual members of it, that help was forthcoming immediately, irrespective of how busy the particular individual happened to be. Indeed, I would certainly be very frightened if I were faced suddenly with the bill for the services rendered by these men on the basis of the fees that they can command in their own profession. I would like to mention specifically some fields in which I have found it so necessary and so valuable to turn to your membership for help. One of the first that comes to my mind is, of course, the Advisory Commission under The Health Services Act. There has been medical representation on this committee since its inception. Indeed, it takes the shortest study to determine that The Manitoba Health Plan as we know it today could never have succeeded were it not for the consideration, the understanding, and the help given by your organization. When one considers that this committee dealt with Health Units, Diagnostic Units, municipal doctors' plans, hospitalization, then I am sure it can be correctly said that only by sincere mutual understanding has our plan been possible.

I would like to take this opportunity of dealing briefly with the Health Unit situation in the province. We have, as you know, not yet been able to cover the Province with this service. At present there are 13 Units serving 343,954 people. It is interesting, but I am sure not at all surprising, that the Health Units offering the finest services, and doing the best work, are located in those areas where the local physicians are definitely interested and providing active support, whereas in areas where the local physicians are not interested, the Health Unit does not operate at its utmost potential. In other words, a Health Unit cannot realize our mutual aim unless both the staff of the Unit and the private physicians in the area are co-operating one with the other to the fullest possible extent. I know that when this service was originally contemplated there were misgivings on the part of many that maybe this was simply the beginning of a program initiated by

*Presented at the Annual Meeting of the Manitoba Medical Association, Winnipeg, October 18, 1956.

the government whereby they would come into active competition with the private doctor. I am sure as this plan has developed, that these misgivings have proven to be unfounded and that our policy has certainly been one of working with, and not against the private physician. As this program is extended to the remaining areas of the province as yet uncovered, may I ask that the co-operation that we have received in the past be continued on into the future?

I would like to deal next, briefly, with our Laboratory and X-ray Units and the services they render. I think that we can be very proud of the development that has taken place in this particular field in the Province of Manitoba. I am sure that you are familiar with the fact that Manitoba is a pioneer in this field, in that it was the first province to offer this service. And you know, if I might digress here for a moment, it was certainly a surprise to me when it became necessary to prepare an overall brief of the health services offered by the province in preparation for a recent Ottawa conference, to find that we Manitobans need take a back seat to none in the development of health services. Especially is this true in the field of our Laboratory and X-ray Units. Now I know from what I have been able to learn of the past history of these units that the road at times was a little bit rocky. I know that you and your Association, and I can quite clearly understand why, were certainly much concerned about this new departure in government policy. But I am sure that as it has developed, the line of demarcation between the two fields of responsibility, yours and ours, has been clearly and fairly marked. And, indeed, when recently we were in temporary difficulties in obtaining trained personnel for some of the work required, I received the utmost co-operation from members of your Association in helping us over a rather difficult situation. We have been unable, of course, to cover the rural parts of Manitoba completely with this service, due primarily to inability to obtain trained personnel. It is our hope that this aim will in some time in the not too distant future, be realized. As you know, the Department opened the fifth Unit at Portage this year, and these services now cover 120,891 people. Actually, if we count the City of Winnipeg which does, of course, have Diagnostic Services available, not government sponsored, it is possible to travel from the Western to the Eastern side of this province without ever being outside an area where these services are available. Our aim remains the same as it was at the beginning, and it is to provide the most satisfactory service it is possible to provide to private doctors, patients and to the hospitals. Needless to say, the ultimate of the overall program depends to a very large degree upon your continuing co-operation, which I sincerely hope will be forthcoming.

I would like to mention briefly, the Advisory Committee on polio. In this connection I have been much more fortunate than my predecessor, the Honourable Mr. Bell, who, as you will recall, had to deal with the epidemic which broke out in 1953. Since that time, very fortunately for all concerned, this committee has not had to be as active as previously. However, I would like to pay tribute to the work of that committee on this occasion, because I am telling only the truth when I say that the work of this committee was invaluable in helping the government to establish a policy, with respect to this disease, which was received most favourably in all quarters.

Now, I know there are many other areas in which members of your Association have operated in the best interest of all concerned, such as the Sanatorium Board, the Cancer Relief and Research Institute, and others. However, time does not allow for me to any more than mention these in passing.

There is another committee, however, I would like to devote a few minutes to. This one is the Medical Advisory Committee on Rehabilitation. I know that I have mentioned this before, and indeed some of you, at least, have heard me on different occasions. However, I think that if anything bears repetition, surely it is the truth. You know, we, who are dealing day after day with human ills and the troubles that beset us on all sides, I am sure, that some time or another can hardly help feeling a bit depressed, and I know in so far as the Department that I represent is concerned, one of the chief lifts, if you like, or ray of encouragement that I received, was when I began to study and became intimately acquainted with the work on rehabilitation. It might interest you to know that the joint efforts of your representatives and various voluntary organizations, as well as officials of this Department, have finally developed a co-ordinated program which we consider to be the best in Canada, and which, I might add, the Federal officials have pointed out has developed to a greater extent than any other. In other words, through our united efforts, although we have a long way yet to go, still our program is considered to be further advanced than any of our neighboring provinces. This could not have been realized, nor indeed, could our present program function without the direct medical services given by members of your organization.

I am sure you will agree that there is more than ample evidence to show that your Association is carrying out its full obligation in the overall partnership, and you can quite justifiably ask "What evidence is there to show that we are carrying out ours?" There is a certain fundamental philosophy which I know is true of the department now, and has indeed, been true in the past. Firstly, it has always recognized the right of the medical profession to govern its own affairs. The recent amendments that were made to The Medical Act

under which your organization operates, were almost entirely according to your suggestions. Your voluntary prepaid plans for medical care such as M.M.S. receive not only our recognition, but our approval. Amendments were brought in recently to both The Municipal Act and The Health Services Act, allowing municipalities to enroll part of or whole of their residents in this service.

Now there are just two more things I would like to mention. I would like to deal briefly with the recent hospitalization legislation that was passed at the last session of the House. You will recall, I am sure, that in the latter months of 1954 and the early part of 1955, what was widely termed as a "crisis" developed in some of our voluntary hospitals. As a result, a Hospital Conference was called. Now I do not propose to take up your time going over ground which must be familiar to most of you. I think it is worthwhile mentioning, of course, that a brand new concept of indigent care was, for the first time implemented into government policy. This concept was that the hospital should receive from the public governments, either municipal or provincial, the full cost of care for any indigent care. Formerly, you know, this was not true. And so in order for a hospital to carry on at all it found itself in the position of having to load the paying patients with part of the costs of those who were not paying. No one could blame the hospitals for this practice because it was the only way they could float. However, it certainly was not, in my humble opinion, the fair thing to have happened to those who were hospitalized and in a position to pay their own bills. Surely their being overtaken by illness of one kind or another was financial hardship enough, without having to take on additional obligation, and so the fundamental principle that the state either at the municipal or provincial level should assume this obligation, was a very sound one indeed. However, your organization has a respnsibility in this matter which is very necessary for the overall success of the plan. Stated briefly, it is simply that doctors will be most careful to see that only those who are requiring hospitalization, find themselves there. I am sure that I need not mention anything further than that. Indeed, I find that no matter what program is initiated or carried out in this department, somewhere along the line I must have the co-operation of the doctors.

And now, just a word on Health Insurance. This is a topic which during the latter year or so has been receiving the utmost attention. I believe that you as doctors must devote even more time to the consideration of all its implications than possibly the ordinary citizen. Firstly, you must look upon any hospitalization or health insurance plan from the point of view of the patient concerned. Is an overall plan going to improve or cause to deteriorate the services available to the patient? Secondly, you must look at it from a point of view as a citizen, and according to whether or not you think a policy that is to be followed, with respect to this very important question, is the one most beneficial to Manitobans as a whole. Are you ready, for example, to accept the fact that the state should be paying the bills of those well able to pay their own, or should a state's responsibility be simply that of making certain that no patient is faced with an illness the financial costs of which are catastrophic in nature, and can seriously cripple the said patient economically, not only temporarily but maybe, indeed, permanently? Those are some of the questions you must be asking yourself, and indeed, those are the questions that I, and this Department, must give the closest consideration to. In so far as my own thinking goes, I am certain of this, that a program should be instituted which removes the danger of the costs of any illness wiping out the savings of an individual, or indeed, crippling that person financially. I am not prepared, however, at this time to say that it is the function of a state to pay hospital bills for those who are well able to take care of them on their own.

In closing, I would like to mention briefly several particular areas where I believe both your Association and this Department must redouble their efforts. The three main fields I have in mind are:

1. maternal and child hygiene
2. chronic diseases
3. mental hygiene.

These three offer a challenge which, if we are to carry out our obligations to the citizens of this province, must be met both individually and jointly. I am certain by extending to an even greater efficiency the co-operative basis on which we are working at present, that results could be obtained which would be of mutual benefit to both parties. And so, I would like to ask your Association to give particular attention to these fields of activity and feel free to suggest at any time, as I will feel free to suggest to you, a policy of joint attack which will allow both partners to make the greatest possible contribution to a successful meeting of the challenge before us.

One final word — it has always been difficult for any jurisdiction to decide the clear line of demarcation between individual and joint participation in a partnership such as ours. It is perhaps not too difficult in many situations to come to complete agreement as to whether the problem presenting itself is one to be handled by either of the two partners alone, or whether the field is one where joint activity is necessary. If you were to ask me where the responsibility of this Department definitely enters, I think it was very ably expressed some time ago by a man much more capable than I am. and I would like to take his definition of this line of demarcation as the cornerstone of the philosophy of this Department. The gentleman I

refer to is Doctor Sheppard, and I quote directly from one of his articles as follows:

> "The dividing point between private practice of medicine and public health, is that point at which the health problem in a given community is of sufficient interest to a sufficient number of citizens so that some type of community organization is required to solve it."

Finally, I believe that we will reach a very important milestone in our relationship when you as a private practitioner, and we as public health officials, can see our duties as independent parts of an overall joint plan to benefit the health and happiness of all mankind.

Annual Meeting Address*

Mr. Morris Neaman, Hon. Treasurer, M.M.S.

Mr. President, Ladies and Gentlemen:

It was a pleasant surprise to me when I received your invitation to be with you this evening, and I would like, at the outset, to thank you for your great kindness in asking me to come.

I appreciate, also, the opportunity of saying a few words, because I feel that in doing so I am communicating with the entire medical profession of Manitoba.

During the past two years I have had the honour to be treasurer of the Manitoba Medical Service. This has given me opportunities to observe its activities and problems from the inside. But, actually, I am an OUTSIDER. I am neither a medical man nor an M.M.S. subscriber. Therefore I have no axe to grind. I am detached. And anything I may say tonight, or in the future, will be uninfluenced by any personal considerations.

Having just returned from the Western Conference of Prepaid Medical Care Plans, held last week at Sun Valley, Idaho, I am losing no time in bringing to you some of my thoughts and impressions, which I hope you will find of interest and of value in our efforts to extend and improve the operations of the Manitoba Medical Service.

First of all, I wish to pay tribute — the tribute of an interested layman — to the medical profession of Manitoba for the idealism and fine spirit of public service which enabled them to give M.M.S. a starting point which no other prepaid plan in North America has yet overtaken. Perhaps I should explain. I refer to the fact that no other prepaid plan, to my knowledge, gives complete, unlimited coverage for a limited charge to its subscribers.

Needless to say, I felt very proud of our M.M.S. as I listened to the discussions at Sun Valley by leading medical men, prepaid medical plan administrators, and well-informed observers, both doctors and laymen on such questions as: "Are We Meeting the Challenge?", "Is the Public Getting What it Wants?", "Industry's Point of View," "How the Public Regards Prepaid Health Plans," and many more. These points were discussed by men such as:

1. J. Lafe Ludwig, M.D.—Member, A.M.A. Council on Medical Services, Committee on Federal Medical Services.
2. Odin W. Anderson, Ph.D. — Research Director, Health Information Foundation.
3. W. Palmer Dearing, M.D. — Deputy Surgeon General, Department of Health, Education and Welfare.
4. Albert J. Hayes—International President, International Association of Machinists.
5. Charles A. Terhune, M.D. — President, Idaho State Medical Association.
6. Gilbert Cant — Medical Editor, Time Magazine.
7. J. T. Hughes — Manager, Employees' Benefits Department, Crown Zellerbach Corp.

I felt proud because it has become very apparent to me that, thanks to the advanced initial concept on which M.M.S. was founded, we in Manitoba don't face the painful adjustments and difficult problems which most prepaid plans must expect to go through during the next few years if they are to get in line with the kind of service and costs that the public demands and will eventually secure for itself, either on a voluntary basis, or through social legislation.

I felt proud to have come from a province where the medical profession, in grappling with the problem of making medical service available to all, had led the continent in its understanding of that problem, and in its unselfish willingness to take effective, comprehensive action.

I have always maintained that prepaid medical care is really a social reform movement — not merely a procedure whereby people may anticipate and budget their medical expenses. I regard it, gentlemen, as a philosophy which embodies not only a number of humane public service principles, but also the method for their practical application. It is a philosophy far removed, in its aspirations and efforts, from consideration of mere dollars and cents. May I go one step further and say that M.M.S., in its principles and methods, comes nearer to exemplifying the philosophy of the great present-day leaders of thought in the medical profession, and in the broad field of public service, than any other plan in existence.

Gentlemen, you have every reason to be proud of M.M.S. and of all that you have done, individually and collectively, to make its leadership possible. You should be proud, also, of the medical man who, as your representative, directs and guides the Manitoba Medical Service. I refer, of course, to Dr. MacMaster, who, in my opinion, stands out on the North American scene, as one of the greatest men in this field.

Dr. MacMaster is a great believer in prepaid medical care, having experienced nationalized

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*Presented at the President's dinner to the Executive and Guests of the Manitoba Medical Association, October 14th, 1956.

medicine in the United Kingdom. With great ability and inspiring personal integrity, he has been and is the guardian of the dignity and high purpose of the medical profession, while also safeguarding — all along the line — the paramount interests of the subscribers and the general public.

It may be argued by some members of the profession that M.M.S. is too generous — that it gives too much for too little — that it is too costly to the medical practitioner—that we should evolve more slowly. I am sure that few can agree with that thinking. I cannot believe that more than a handful would say that in their efforts to help suffering humanity they had been too idealistic, or had given too much.

A few years ago, perhaps, we were ahead of the times, but we definitely are not now. Let us be thankful, however, that we are in the happy and almost unique position of having anticipated the scope of services and scale of costs which the public throughout North America is demanding today. You know as well as anyone, that what the public wants will eventually develop into a ground swell that cannot be denied; you know that wherever the prepaid medical plan that is in force falls short of what the public believes it should have, difficult alternatives must be faced. Either the plans will be liberalized, or the public will take matters into its own hands. The latter alternative, as you well know, carries with it the threat of socialized medicine.

We can be happy that in Manitoba such an alternative is less likely to arise than in almost any other part of the continent. I think this is true, and it makes me happy to think so, because from all I have heard or read about socialized medicine, it's a bad thing for everybody — but in particular for the public. There can be no more intimate or more delicate a relationship. Under socialized medicine, the whole practice of medicine would be removed from the area of enlightened and dedicated self-discipline by the medical profession itself, and placed under the supervision of politicians and civil servants, however public spirited they might be.

These are some of the thoughts that went through my mind during the past week at that important conference in Sun Valley. To sum them up, I feel that M.M.S., thanks to the far-sighted and public-spirited medical men who founded it, leads the whole continent in the solution of one of humanity's greatest social problems. I am convinced that, because of this leadership, we are not faced with the difficulties and major adjustments with which most prepaid plans are now confronted or soon will be. And I am glad that, because of this, we can continue to widen and broaden our efforts without taking time out to deal with crippling emergency situations brought on by public dissatisfaction.

Gentlemen, we can be very happy about the position in which we find ourselves at this moment, BUT NOT TOO HAPPY. Not so happy as to become smug and complacent. Though we have done wonderfully well in comparison with other prepaid plans, we have to judge our success by an entirely different standard. Here is the yardstick I suggest: "How well have we met the challenge to bring a comprehensive prepaid service to ALL THE PUBLIC OF MANITOBA?"

Well, in Winnipeg, where M.M.S. has approximately 50% coverage, we've accomplished half the job. Elsewhere in the province, the percentage of subscribers to total population is very small indeed. We have a selling job to do. I'm not sure of the actuarial aspects of this matter, but I think it is more than probable that the nearer we approach 100% subscription to M.M.S., the more our expenses will diminish in relation to revenue. Development along these lines, I believe, would tend to reduce, and perhaps ultimately eliminate, the pro rata principle on which we now pay for medical services. I should like to see that day, and I'm sure you would too.

Still another aspect of the challenge which leaves something to be desired, is a certain "lukewarmness" toward M.M.S. on the part of a few doctors. Unfortunately, even a few can have some effect on younger men, and on the public, too. The result is that there is something less than 100% unity among the medical profession with regard to M.M.S., and something less than 100% loyalty to the magnificent plan which the medical men themselves initiated to make possible a broader and finer medical service to the public. So there's another selling job we have to do.

In conclusion, gentlemen, I would like to say that we laymen who take an active part in M.M.S. do so because we have caught some of your idealism, and imbibed some of your dedicated spirit. We count it a rare privilege to give of our time and whatever talents we may have, to assist you in this noble and necessary enterprise. May its leadership never falter, and its usefulness never wane!

Editorial

S. Valsrub, M.D., M.R.C.P. (Lond.), F.R.C.P. (C.), F.A.C.P., Editor

Too Much of a Good Thing

"Beware the Awful Avalanche"
Henry Wadsworth Longfellow.

Much has been written and said about Specialism in Medicine—perhaps too much. The subject lends itself readily to ponderous addresses and commemorative orations, as well as humorous after dinner speeches. It is also a frequent topic for editorial comment, the latter usually of a disapproving, lamentatory nature.

It is not, however, with the intent of deploring medical specialism that these lines are written. Nor are they meant to praise it. Indeed, neither approval nor disapproval matter a great deal in this case, for specialism is an inevitability, a natural process, part and parcel of life at every level and in every sphere, whether it be differentiation of function in tissues and organs, or division of labor in society. It is rather with some random observations on the curiosities and oddities of present day medical specialization, and their implications that this editorial is concerned.

Specialization in Medicine is not a recent development. It has its roots in antiquity. The shamans of the primitive tribe were often specialists, who limited their healing powers to a small number of diseases. Their more civilized colleagues of ancient Chaldea and Egypt were highly specialized, there having been according to Herodotus in old Egypt "physicians of the eye, others of the head, others of the teeth, others of obscure diseases," as well as "physicians of the belly, guardians of the anus and specialists of the fistula." Greece, Rome and other ancient civilizations were similarly blessed with an abundance of medical specialists. Even in the middle ages, when specialism was dormant, there remained a sharp division between physicians and surgeons. The modern age can, thus, lay no claim to the introduction of specialism into the realm of Medicine.

What the modern era, particularly the twentieth century can boast of, however, is the numerical growth of medical specialties, which now can no longer be counted on the fingers of one's hand, nor, for that matter, on all one's fingers and toes —the number now exceeding two score.

Most of the newer specialties follow the old subdivisions along topographical or structural lines, dealing with a system, such as the cardio vascular, an organ, such as the nose, or a tissue such as skin. Some are confined to the limits of one disease, of which diabetes and tuberculosis are examples. Many are concerned with specialized functions and techniques, such as radiology and anesthesia. Others are cleft along the lines of age—pediatrics and geriatrics occupying the opposite poles.

It is tempting, in the light of some of the newer specialties to indulge in fanciful speculations on possible future developments. If, for instance, the new specialty of Ephebiatrics (diseases of youth), introduced by Ogilvie, (Lancet 1954, 267, 395) catches on and takes its place alongside Pediatrics and Geriatrics, then all that is needed to complete life's cycle are Pubertology, Mediatrics (a specialty for the middle aged), and Climacteriatrics. (Alas poor general practitioner! We knew him when his was the whole life span of the patient.)

Similarly, if therapeutics has become a happy breeding ground for specialties, such as Radiotherapy, Physical Medicine, Chemotherapy, Psychodynamic Reassurance, may not a similar fate befall Diagnosis? May we not expect Physical Diagnosis, Chemodiagnosis, Serodiagnosis, Endoscopy and others to lay claim to specialty status? In fact, if therapy and Diagnosis are to break their lifelong partnership to become specialties apart, could Prognosis be far behind? Indeed, a Master Prognostician, steeped in the knowledge of natural history of disease, versed in statistics, and endowed with prophetic intuition, may yet outshine the glamorous diagnostician, the awe-inspiring "Great Clinician" of yesteryear.

Tempted as the editor may be to go on, tongue in cheek, with the preview of things to come, he must stop. This he must do, if only to allow the earnest reader to register disapproval of the facetious manner in which the serious matter of specialism has been discussed on this page. Having done so, the editor then would justify himself by referring to History, for the latter has repeatedly demonstrated the effectiveness of the time honored "reductio ad absurdum."

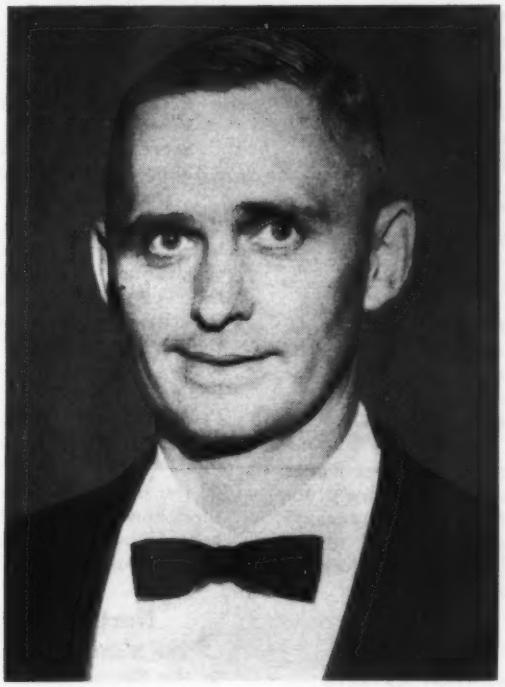
Let us see to it that absurdities do not become realities. Let us welcome the gentle snowfall, but "beware the awful avalanche." Let us keep the "good thing" without having "too much of it."

The Editor.

Association Page

Reported by M. T. Macfarland, M.D.

Greetings from Our President



To the Members of the Manitoba Medical Association:

I wish to extend to you on behalf of your executive a Happy and Successful New Year. Your confidence and support in the past has been greatly appreciated and we are looking forward to a busy year.

I wish on your behalf to congratulate and thank Dr. Ruvin Lyons for the sincere and conscientious way which he carried out the duty of his office as your president for the past two years and to Mrs. Lyons we send our sincere respect for her tolerance and assistance in the promotion of the work of the Association.

Immediate steps were taken following the annual Convention to set up your special policy committee and it is hoped that it will be functioning early in the New Year. Your careful selection of members for this most important committee is anticipated. Dr. M. T. Macfarland has been raised from the position of Executive Secretary to that of Executive Director.

Increasing work that is done in your Association office has required that additional space be obtained and negotiations are underway with the Medical Arts Building to obtain additional office space. This increase in the work done in our office reflects the increasing importance that the Association must play on your behalf.

Please keep in touch with the work of the Association through your local society and our report in the Manitoba Medical Review.

Wishing you every success in the New Year.

J. E. Hudson, M.D.,

President.

Opium and Narcotic Drug Act

The Canada Gazette, Part II Volume 90, No. 21, for Wednesday, November 14, 1956, contains P.C. 1956-1624, Order dated November 1st, 1956, as follows:

"His Excellency the Governor General in Council, on the recommendation of the Minister of National Health and Welfare, pursuant to section 24 of the Opium and Narcotic Drug Act, is pleased hereby to amend the Schedule (1) to the Opium and Narcotic Drug Act as follows:

1. Paragraph 14 of the Schedule to the Opium and Narcotic Drug Act is deleted and the following substituted therefor:

(14) Synthetic phenanthrene alkaloids, or their preparations or their derivatives, or salts, as for example:

Racemorphan (dl-3-hydroxy-N-methylmorphinan),
Levorphan (1-3-hydroxy-N-methylmorphinan) and
methylmorphinan),
Racemethorphan (dl-3-methoxy-N-
Levomethorphan (1-3-methoxy-N-methylmorphinan),

and all derivatives thereof, under whatever names they may be sold, manufactured or offered for sale. but not including Dextrorphan (d-3-hydroxy-N - methylmorphinan, Dextromethorphan (d - 3 - methoxy-N-methylmorphinan), and Levallorphan (1-3-hydroxy-N-allylmorphinan).

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Northern District Medical Society

A meeting of the Northern District Medical Society was held in the Swan River Hospital on Saturday, November 17th, 1956.

Present were: Drs. W. G. Ritchie and M. Potoski, Dauphin, Vice-President and Secretary of the Northern District Medical Society; Drs. M. K. Brandt, L. J. Stephen, B. Symchyk, Dauphin; K. Marjanovich, Ethelbert, A. P. Cameron, J. L. Honig, L. V. Jonat, B. Jonsson, F. P. P. Malcolm, Swan River, J. E. Hudson, Hamiota, E. G. Brownell, Morley Cohen and M. T. Macfarland, Winnipeg.

Following luncheon at the Valley Hotel, clinical cases were presented at the Swan River Hospital, including diabetic gangrene, muscular dystrophy in an eight-year-old boy, pneumonia and meningitis in a premature baby, carcinoma of breast in an elderly female, and x-ray plates of a fractured femur.

Following the ward rounds, papers were given in the Health Unit auditorium by Dr. Morley Cohen, Winnipeg whose subject was "Crush Injuries" and E. G. Brownell, Winnipeg on "Rheumatic Heart Disease."

A reception was held at 5.00 p.m. followed by a turkey dinner provided by the Hospital staff at 6.00 p.m. Mr. James Bilton, Administrator, welcomed the guests and Dr. Ritchie expressed the appreciation of those in attendance.

Dr. J. E. Hudson, President of the Manitoba Medical Association addressed the gathering and outlined various activities carried on by the Association, including Manitoba Medical Service.

A business session was held at which the following officers were selected for the year 1956-57.

President: Dr. L. V. Jonat, Swan River
Vice-President: Dr. M. K. Brandt, Dauphin
Secretary: Dr. M. Potoski, Dauphin
Representative to M.M.A. Executive Committee: Dr. M. Potoski.

It was agreed that quarterly meetings should be held, the next one to be in Dauphin on the third Thursday in February. A lengthy discussion followed on the relationship between the General Practitioners' Association of Manitoba and the College of General Practice, Manitoba Chapter. It was pointed out that the function of the two bodies is different; that of the College of General Practice being educational. It was agreed that additional information would be presented at the February meeting.

Dr. and Mrs. Jonat entertained the guests in their home prior to the return trip during which heavy snow obscured the eclipse of the moon which was supposed to have been visible.

Northwestern Medical Society

The Northwestern District Medical Society met in the Sacred Heart Hospital, Russell, Manitoba, 3:00 - 6:00 p.m. Wednesday, November 14th, 1956.

Visiting speakers from Winnipeg were: Dr. B. E. Loadman, Winnipeg Clinic, Dr. R. H. McFarlane, Manitoba Clinic, and Mr. G. E. McCaffrey, Public Relations Officer, M.H.S.A.

Dr. Loadman discussed common fractures, especially Colles fracture and the use of regular and also the newer types of plaster.

Dr. McFarlane discussed the different types of Arthritis and indications and contraindications of steroid therapy. Apparently the best treatment still hinges around salicylates and physiotherapy.

Mr. McCaffrey brought the meeting up to date on Blue Cross policy.

Attending the meeting were: Drs. Wm. A. Large, Ed. Othe, Roblin; Dr. J. Welsh, Binscarth; Drs. T. I. Brownlee, W. Shaw and H. N. Lange, Russell; Dr. M. E. Sasynuik, Birtle; Drs. J. Ed. Hudson and J. McMillan, Hamiota; and Dr. W. K. Hames, Kenton.

Dr. Wm. A. Large, President and Dr. J. Welsh, Secretary were returned to office for the year 1956-57. Dr. W. K. Hames, Hamiota is the representative to the Manitoba Medical Association, Executive Committee.

Social News

Reported by K. Borthwick-Leslie, M.D.

Sorry — no news.

Gossip monger ill, all of December. Will have enough pep to catch up on the Press reports for next month, I hope.

Since my escape from hospital however, have heard rumors that some of the "higher brass" in the Profession are considering a new Golden Rule for 1957.

"Do unto others as ye would they do **not** unto you, but do it first."

Healthy New Year to all.

K. B.-L.

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1956 Oct. 7 to Nov. 3,'56	1956 Sept. 9 to Oct. 6,'56	1955 Oct. 9 to Nov. 5,'56	1955 Sept. 11 to Oct. 8,'55	Total Jan. 1 to Nov.3,'56	Total Jan. 1 to Nov. 5,'55
Anterior Poliomyelitis	3	2	2	3	14	29
Chickenpox	109	17	94	44	847	1047
Diphtheria	12	3	3	0	23	4
Diarrhoea and Enteritis, under 1 year	10	25	10	23	122	130
Diphtheria Carriers	0	0	0	0	2	2
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	0	3	2	10	15	29
Erysipelas	0	0	2	1	12	13
Encephalitis	1	6	0	0	8	1
Influenza	2	4	8	10	83	231
Measles	60	38	183	90	1221	2371
Measles—German	1	3	2	1	164	65
Meningococcal Meningitis	1	0	2	0	5	15
Mumps	46	35	80	60	1042	1065
Ophthalmia Neonatorum	0	0	0	0	0	1
Psittacosis	0	0	0	0	1	0
Puerperal Fever	1	0	0	0	2	1
Scarlet Fever	13	15	21	19	124	175
Septic Sore Throat	1	8	4	6	15	27
Smallpox	0	0	0	0	0	0
Tetanus	0	1	0	0	3	0
Trachoma	0	0	1	0	0	1
Tuberculosis	49	40	41	33	492	558
Typhoid Fever	0	0	0	4	0	7
Typhoid Paratyphoid	0	0	0	0	1	0
Food Poisoning	0	0	0	0	0	1
Undulant Fever	0	0	0	1	9	8
Whooping Cough	15	45	36	57	348	654
Gonorrhoea	124	110	108	114	1110	1027
Syphilis	10	4	11	5	64	89
Jaundice Infectious	44	28	38	30	279	311
Tularemia	0	0	0	0	0	3

Four Week Period October 7th to November 3rd, 1956

DISEASES (White Cases Only) *Approximate population	*849,000 Manitoba	*861,000 Saskatchewan	*2,825,000 Ontario	*2,952,000 Minnesota
Poliomyelitis	3	2	26	13
Chickenpox	109	2	811	†
Diarrhoea & Enteritis under 1 year	10	6	†	†
Diphtheria	12	....	1	....
Dysentery—Amoebic	....	....	....	3
Dysentery—Bacillary	....	4	7	7
Encephalitis Epidemica	1	1	1	....
Erysipelas	....	†	2	†
Food Poisoning	....	....	....	3
Influenza	2	†	9	5
Jaundice, Infectious	44	46	29	19
Measles	60	5	932	55
German Measles	1	†	137	†
Leprosy	....	....	2	....
Meningitis Meningococcal	1	....	7	4
Mumps	46	1	491	†
Psittacosis	....	†	....	1
Puerperal Fever	1	†	....	†
Actinomycocis	....	1	....	....
Salmonellosis	....	....	....	14
Scarlet Fever	13	2	133	31
Septic Sore Throat	1	1	5	28
Smallpox	....	....	....	....
Tuberculosis	49	29	88	80
Typhoid Fever	....	....	18	....
Typhoid-Parathyphoid Fever	....	....	1	....
Undulant Fever	....	....	6	10
Whooping Cough	15	26	130	5
Gonorrhoea	124	†	77	†
Syphilis	10	†	12	†

†These figures were not given on their reports.

DEATHS FROM REPORTABLE DISEASES
November, 1956

Urban—Cancer, 52; Pneumonia, Lobar (490), 2; Pneumonia (other forms), 16; Syphilis, 1; Septicaemia & Pyaemia, 2; Diarrhoea & Enteritis, 1; Meningococcal infections, 1; Other fungus infections, 1. Other deaths under 1 year, 24. Other deaths over 1 year, 212. Stillbirths, 20. Total, 332.

Rural—Cancer, 29; Influenza, 1; Pneumonia, Lobar (490), 2; Pneumonia (other forms), 6; Tuberculosis, 3. Other deaths under 1 year, 13. Other deaths over 1 year, 164. Stillbirths, 9. Total, 227.

Indians—Pneumonia (other forms), 1; Tuberculosis, 1. Other deaths under 1 year, 4. Other deaths over 1 year, 3. Total, 9.

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Diphtheria—At time of writing, 26 more cases have been reported from the city of Winnipeg, but only two reported onset in December. It is felt from this, that the epidemic may be waning, however, immunization should be continued to be on the safe side as so far seven carriers have been picked up.

Poliomyelitis—Cases are still being reported. Six more have occurred since compiling the above report, two showing paralysis one of these being a 10-month old infant.

Jaundice, Infectious—Showing a steady climb. In using gamma globulin remember the recommended dosage is 0.01 c.c. per pound of body weight **not** 0.1 c.c. We remind you of this since supplies are getting short.

Experimental Research Into Problems of Ageing

Ciba Foundation

For the Promotion of International Co-operation in Medical and Chemical Research
41 Portland Place, London, W.1., England

In order to provide further encouragement to research on the problems of ageing, the CIBA Foundation in London, England, again invites candidates to submit papers descriptive of work in this field for the 1956-57 Awards. The theme is entitled: "Experimental Research into Problems of Ageing."

Details of the conditions may be obtained on application to:

G. E. W. Wolstenholme, Esq., O.B.E., M.A., M.B., B.Ch.,
Director and Secretary to the Executive Council.

Copies of the Regulations and Form of Application should be obtained from Doctor Wolstenholme before an entry is submitted.

Candidates should note the following:

(a) Five awards of an average value of 300 pounds Sterling each, are being offered. The announcement of awards will be made in July, 1957.

(b) Entries must be submitted to Dr. G. E. W. Wolstenholme not later than January 31, 1957.

(c) Entries will be judged by an international panel of distinguished scientists, who will advise the Executive Council of the Foundation on their findings and will also have power to recommend variation in the size and number of the awards according to the standard of entries. Younger workers will receive special consideration. The decisions of the Executive Council will be final.

(d) The work submitted should not have been published before May 31st, Nineteen Fifty-six.

(e) The papers may be in the candidate's own language but should not exceed 7,000 words in length. In all cases a summary in English not exceeding 3% in length must be attached.

(f) Where there is one or more co-author, the name of the leading author should be indicated. It is to him that the award will normally be made for distribution among his co-authors at his discretion.

Detailmen's Directory

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Sliding Hiatus Hernia in Children
(Continued from page 25)

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Medical Library Accessions

The Medical Library issues lists of books added to the Library twice a year. The January-to-June receipts list is distributed during the autumn and the July-to-December list early in the spring. These are always sent to the hospitals and clinics in Manitoba.

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